

# HCD-CP500MD

## SERVICE MANUAL

Ver. 1.4 2006.12



AEP Model  
UK Model  
E Model  
Australian Model  
Chinese Model

HCD-CP500MD is the Amplifier, MD deck, CD player, Tape player and Tuner section in CMT-CP500MD.

CD Section	Model Name Using Similar Mechanism	New
	CD Mechanism Type	CDM55F-K4BD43
	Base Unit Type	BU-K4BD43
	Optical Pick-up Type	KSM-213DHAP
MD Section	Model Name Using Similar Mechanism	New
	MD Mechanism Type	MDM-7B
	Optical Pick-up Type	KMS-260B
Tape deck Section	Model Name Using Similar Mechanism	New
	Tape Transport Mechanism Type	Mech deck

### SPECIFICATIONS

#### Amplifier section

##### AEP, UK model:

DIN power output (rated): 30 + 30 W  
(6 ohms at 1 kHz, DIN)

Continuous RMS power output (reference):  
35 + 35 W  
(6 ohms at 1 kHz, 10% THD)

Music power output (reference):  
85 + 85 W

##### Other models:

The following measured at 230 V AC, 60 Hz

DIN power output (rated): 30 + 30 W  
(6 ohms at 1 kHz, DIN)

Continuous RMS power output (reference):  
35 + 35 W  
(6 ohms at 1 kHz, 10% THD)

The following measured at 220 V AC, 60 Hz

DIN power output (rated): 24 + 24 W  
(6 ohms at 1 kHz, DIN)

Continuous RMS power output (reference):  
27 + 27 W  
(6 ohms at 1 kHz, 10% THD)

#### Specifications (continued)

##### Inputs

ANALOG IN (phono jacks):

Sensitivity 250 mV,  
impedance 47 kilohms

DIGITAL OPTICAL IN (Supported sampling  
frequencies: 32 kHz, 44.1 kHz and 48 kHz)

##### Outputs

PHONES (stereo minijack):

Accepts headphones with  
an impedance of 8 ohms  
or more

##### SPEAKER:

Accepts impedance of 6 to  
16 ohms

#### CD player section

##### System

Compact disc and digital  
audio system

##### Laser

Semiconductor laser  
( $\lambda = 780 \text{ nm}$ )

Emission  
duration: continuous

##### Wavelength

780 – 790 nm

##### Frequency response

2 Hz – 20 kHz ( $\pm 0.5 \text{ dB}$ )

#### Tape player section

##### Recording system

4-track 2-channel stereo  
50 – 13,000 Hz ( $\pm 3 \text{ dB}$ ),  
using a Sony TYPE I  
cassette

Wow and flutter  
 $\pm 0.15\%$  W. Peak (IEC)  
0.1% W. RMS (NAB)  
 $\pm 0.2\%$  W. Peak (DIN)

#### MD deck section

##### System

MiniDisc digital audio  
system

##### Laser

Semiconductor laser  
( $\lambda = 780 \text{ nm}$ )

Emission duration:  
continuous

##### Sampling frequency

44.1 kHz

##### Frequency response

5 Hz – 20 kHz

— Continued on next page —

## MICRO HI-FI COMPONENT SYSTEM

9-873-216-05

2006L16-1

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Sony Corporation

Personal Audio Division

Published by Sony Techno Create Corporation

# SONY®

# HCD-CP500MD

## Tuner section

FM stereo, FM/AM superheterodyne tuner

### FM tuner section

Tuning range	87.5 – 108.0 MHz (50-kHz step)
Antenna	FM wire antenna
Antenna terminals	75 ohm unbalanced
Intermediate frequency	10.7 MHz

### AM tuner section

Tuning range	
AEP and UK model:	531 – 1,602 kHz (with the tuning interval set at 9 kHz)
Other models:	530 – 1,710 kHz (with the tuning interval set at 10 kHz) 531 – 1,602 kHz (with the tuning interval set at 9 kHz)
Antenna	AM loop antenna, external antenna terminal
Intermediate frequency	450 kHz

## General

### Power requirements

Chinese model:	220 V AC, 50/60 Hz
AEP and UK model:	230 V AC, 50/60 Hz
Australian and Hong Kong model:	
	220 – 240 V AC, 50/60 Hz
Other models:	110 – 120 V or 220 – 240 V AC , 50/60 Hz Adjustable with voltage selector

### Power consumption

AEP and UK model:	See the nameplate 0.5 W (in the standby mode)
Other models:	See the nameplate

### Dimensions (w/h/d)

Approx. 190 × 252 ×  
335 mm incl. projecting  
parts and controls

### Mass

Approx. 7.0 kg

### Supplied accessories

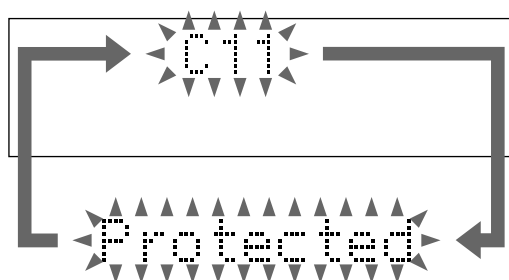
Remote commander (1)  
AM loop antenna (1)  
FM wire antenna (1)  
Batteries (2)

Design and specifications are subject to change  
without notice.

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## Self-diagnosis display

This system has a Self-diagnosis display function to let you know if there is a system malfunction. The display shows a code made up of three letters and a message alternately to show you the problem. To solve the problem refer to the following list. If any problem persists, consult your nearest Sony dealer.



### C11/Protected

The MD is protected against erasure.

Remove the MD and slide the tab to close the slot (see page 16).

### C12/Cannot Copy

You tried to record a CD or MD with a format that the system does not support, such as a CD-ROM.

→ Remove the disc and turn off the system once, then turn it on again.

### C13/REC Error

Recording could not be performed properly.

→ Move the system to a stable place, and start recording over from the beginning.

The MD is dirty or scratched, or the MD does not meet the standards.

→ Replace the MD and start recording over from the beginning.

### C13/Read Error

The MD deck cannot read the disc information properly.

→ Remove the MD once, then load it again.

### C14/Toc Error

The MD deck cannot read the disc information properly.

→ Replace the MD.

→ Erase all the recorded contents of the MD using All Erase Function (see page 27).

### C41/Cannot Copy

The sound source is a copy of commercially available music software.

→ The Serial Copy Management System prevents making a digital copy (see page 47).

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## SECTION 1

### SERVICING NOTE

#### NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

#### FOR CD

#### NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

#### FOR MD

#### NOTES ON LASER DIODE EMISSION CHECK

Never look into the laser diode emission from right above when checking it for adjustment. It is feared that you will lose your sight.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT  
LUOKAN 1 LASERLAITE  
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

**CAUTION** : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.  
**ADVARSEL** : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.  
**VORSICHT** : UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET UND SICHERHEITSSCHLÖSSELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.  
**VARO!** : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALT-TIINA NÄKYMÄTTÖMÄLLÄ LASERSÄTEILYLLÄ. ÄLÄ KATSO SÄTEESEEN.  
**VARNING** : OSYNLIG LASERSTRÅLING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD, BETRÄKTA EJ STRÅLEN.  
**ADVERSEL** : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.  
**VIGYAZAT!** : A BURKOLAT NYITÁSAKOR LÁTHATATLAN LÉZERSUGÁRVESZÉLY! KERÜLJE A BESUGÁRZÁST!

This caution label is located inside the unit.

#### CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

#### 与安全有关的零部件须知

在原理图上用阴影及  $\triangle$  标记来识别的零部件在安全操作上是具有关键性的。这些零部件要用本手册中所示的部件号对应的索尼零部件进行更换。

在安全操作上具有关键性的电路调整与索尼公司出版的维修手册完全一致。在更换关键零部件时或怀疑动作失常时，请进行这些调整操作。

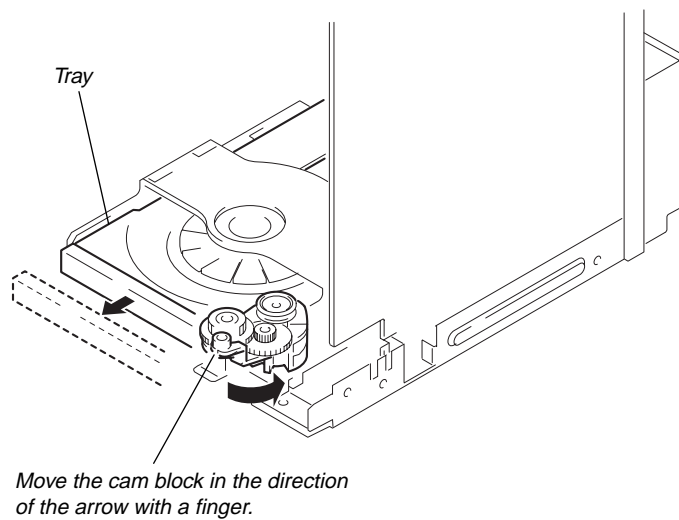
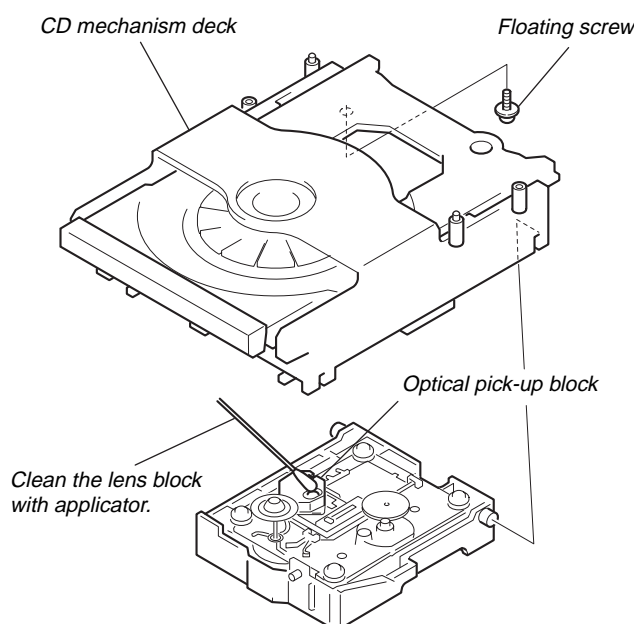
#### Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

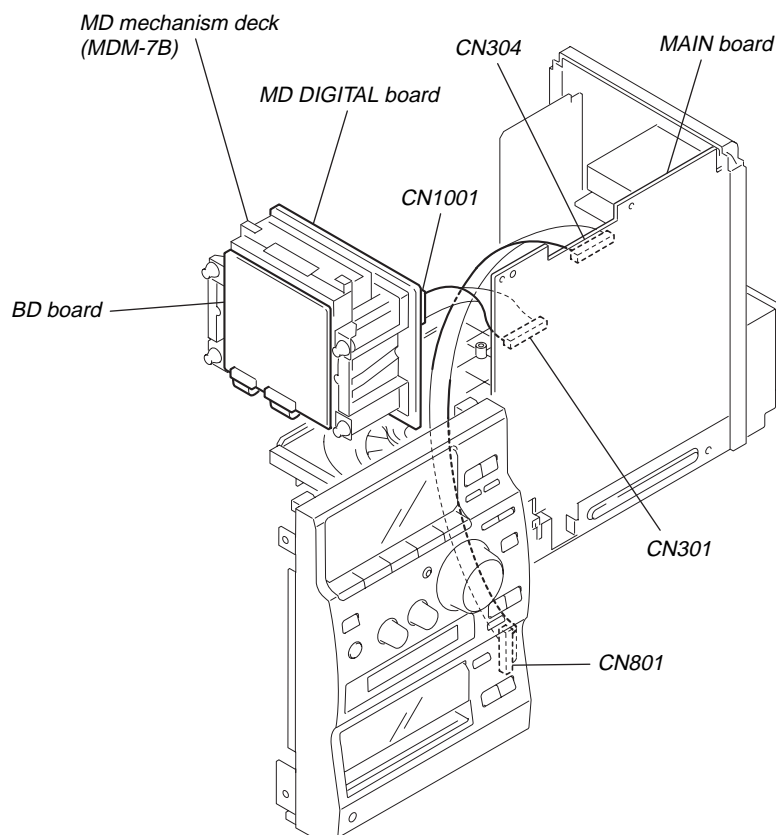
#### Flexible Circuit Board Repairing

- Keep the temperature of soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

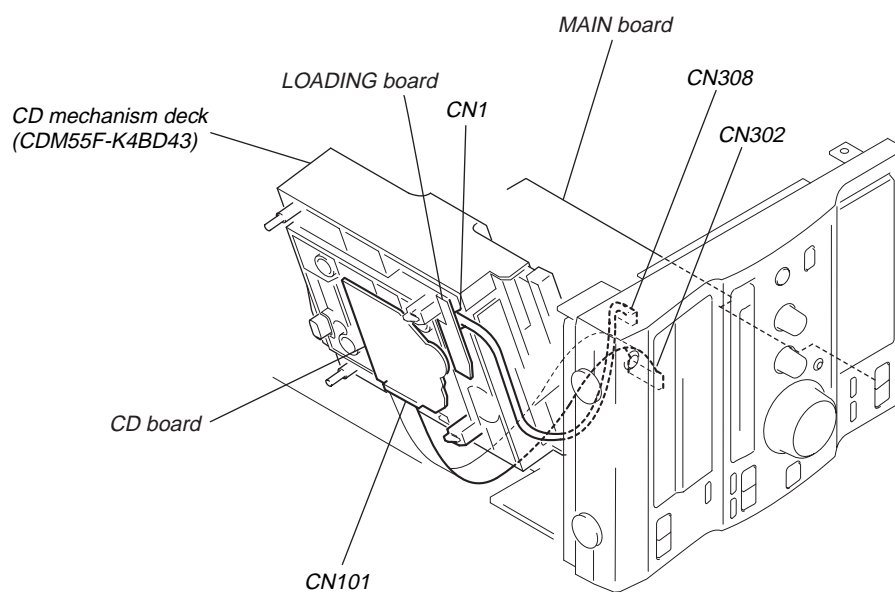


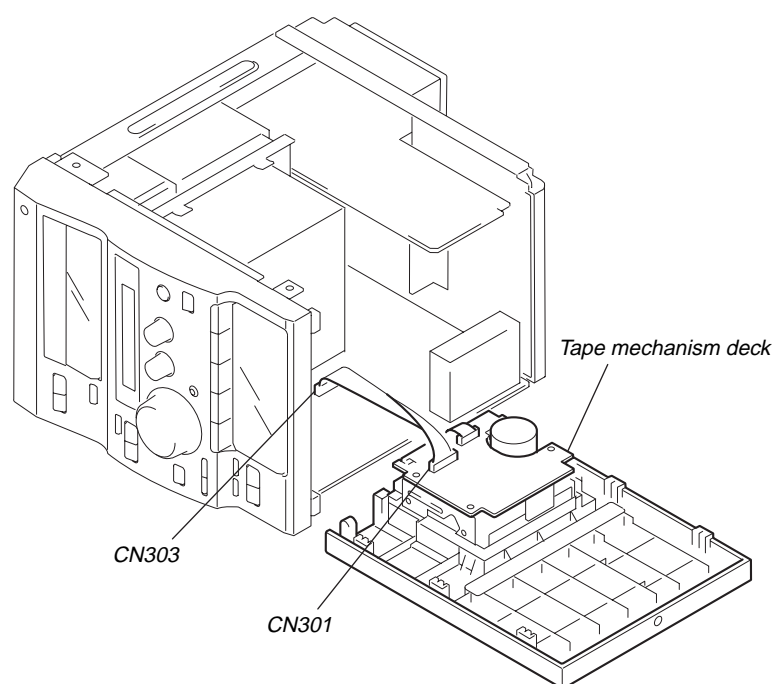
**DRAWING OUT THE TRAY DURING POWER OUT****CLEANING THE OPTICAL PICK-UP (CD PLAYER)**

## SERVICE POSITION OF THE MD MECHANISM DECK



## SERVICE POSITION OF THE CD MECHANISM DECK

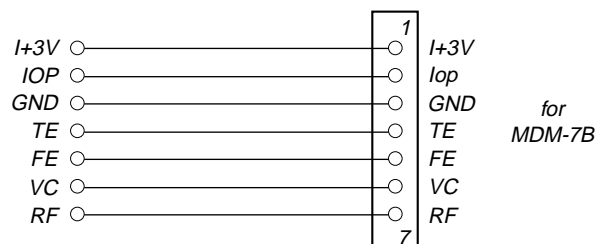
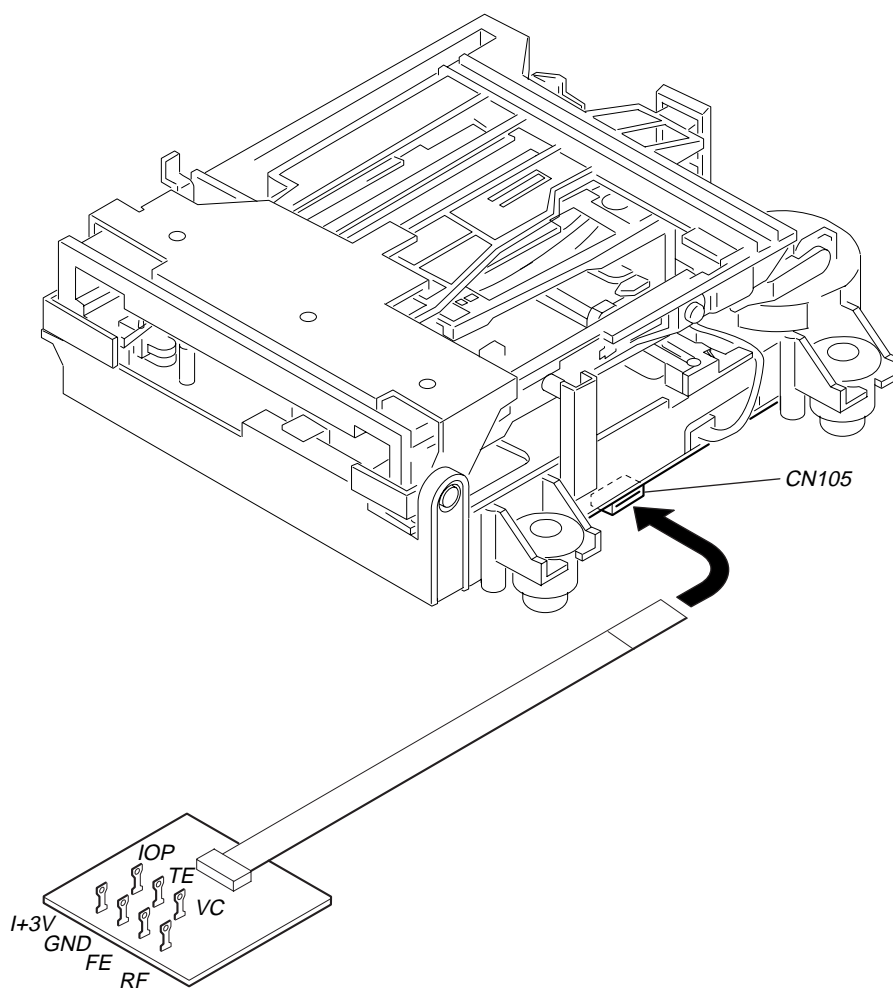


**SERVICE POSITION OF THE TAPE MECHANISM DECK**

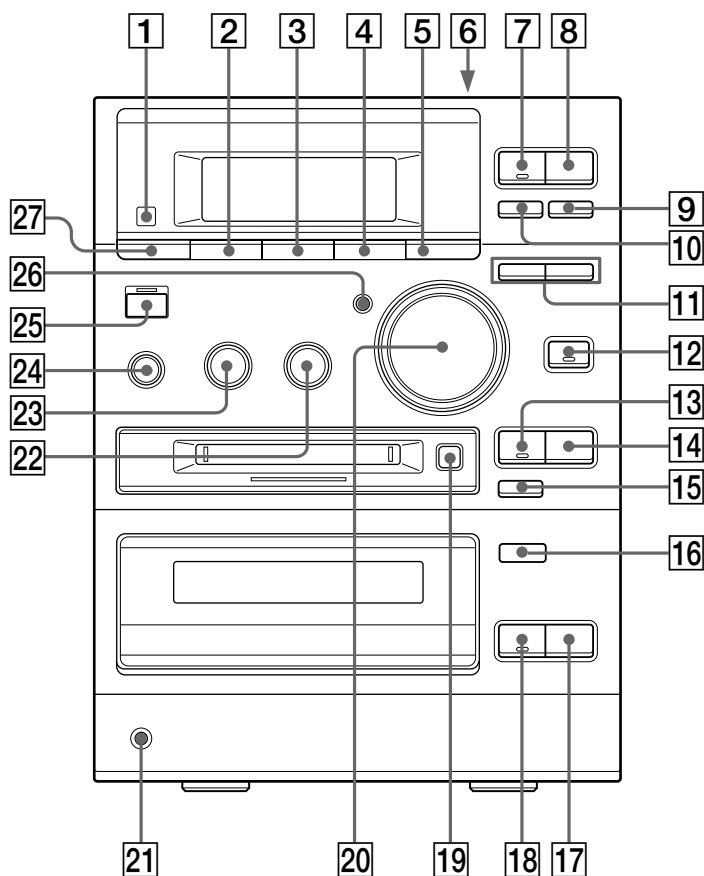
## JIG FOR CHECKING BD (MD) BOARD WAVEFORM

The special jig (J-2501-196-A) is useful for checking the waveform of the BD (MD) board. The names of terminals and the checking items to be performed are shown as follows.

- GND : Ground
- I+3V : For measuring IOP (Check the deterioration of the optical pick-up laser)
- IOP : For measuring IOP (Check the deterioration of the optical pick-up laser)
- TE : TRK error signal (Traverse adjustment)
- VC : Reference level for checking the signal
- RF : RF signal (Check jitter)
- FE : Focus error signal



## SECTION 2 GENERAL



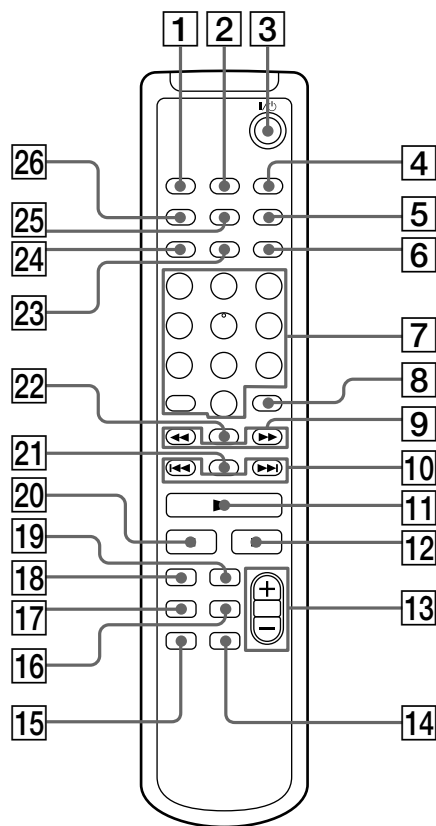
BASS **23** (40)  
 CD EJECT **▲ 16** (8, 9, 16, 50)  
 CD **■ 17** (9, 10, 17, 38)  
 CD **▶▶ 18** (9, 10)  
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 TAPE **<> 7** (37 – 39)  
 TAPE **■ 8** (18, 37 – 39)  
 TAPE **▶▶ 9** (37, 39)

TREBLE **22** (40)  
 TUNER BAND **12** (34, 35, 50)  
 TUNING MODE **27** (34, 35)  
 TUNING +/- **11** (34, 35)  
 VOLUME **20** (41)

### BUTTON DESCRIPTIONS

**◀◀ ▶▶ 11** (9, 10, 13 – 15)  
**◀▶▶▶ 11** (9, 13, 37)  
**I/⏻ (power) 25** (7, 16, 24, 35, 41, 43, 50)



BASS/TRE **5** (40)  
 CD **17** (9 – 11)  
 CLEAR **8** (10, 14, 15, 25, 36)  
 CLOCK/TIMER SELECT **2** (42, 43)  
 CLOCK/TIMER SET **4** (7, 41, 42)  
 CURSOR ←/→ **9** (7, 12, 25)  
 DISPLAY **21** (8, 10, 11, 15, 19, 36)  
 DSG **14** (40)  
 ENTER/YES **6** (7, 10, 12, 14, 20 – 23, 25 – 34, 36, 41 – 43)  
 FUNCTION **15** (9, 10, 13, 14, 19, 22, 23, 37, 39, 43)  
 MD **18** (13, 14, 25, 27 – 30, 32)  
 MENU/NO **24** (12, 21 – 24, 26 – 34)  
 NAME EDIT/SELECT **23** (11, 12, 24, 25, 36)

Number buttons **7** (9, 10, 12, 14, 15, 25, 35)  
 PLAY MODE **26** (9, 10, 13 – 15, 24, 32)  
 REPEAT **25** (9, 13)  
 SCROLL **22** (12, 15, 26)  
 SLEEP **1** (40)  
 TAPE **16**  
 TUNER BAND **19** (34, 35)  
 VOLUME +/- **13** (41)

#### BUTTON DESCRIPTIONS

⏻ (power) **3** (7, 16, 24, 35, 41, 43)  
 ⏮ ⏭ **9** (28, 30)  
 ⏮ ⏭ **10** (7, 11, 12, 21 – 23, 25 – 34, 40 – 42)  
 ▶ **11** (9, 10, 13, 15, 23)  
 ■ **12** (23)  
 || **20** (9, 13, 28)

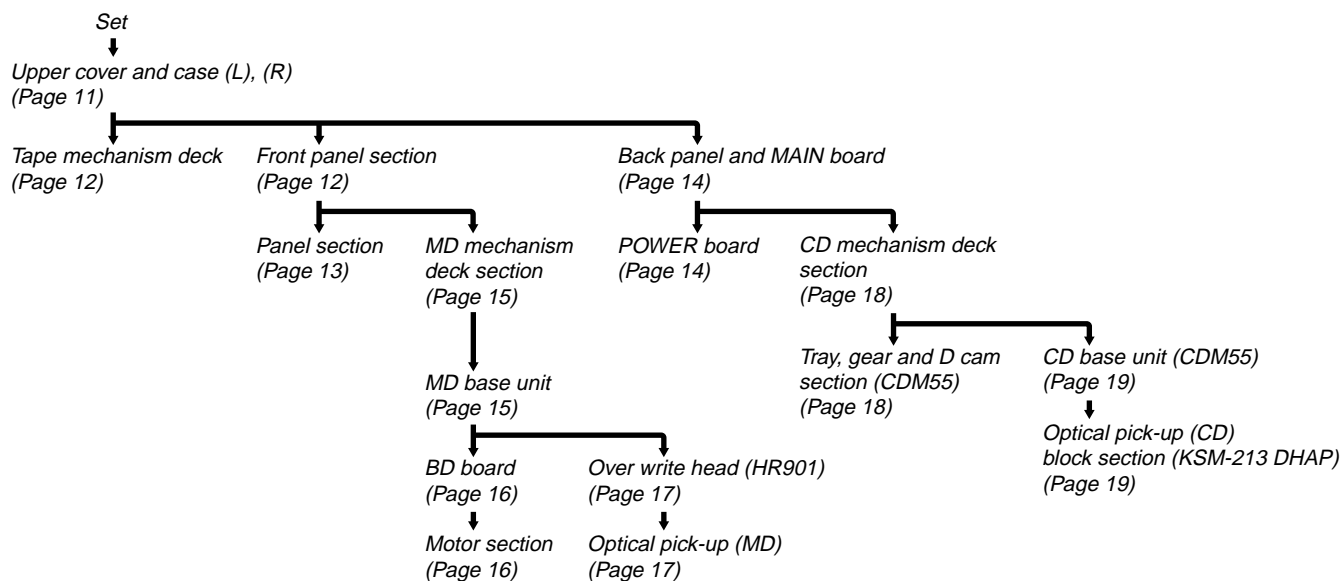
## Setting the time

- 1 Turn on the system.
- 2 Press **CLOCK/TIMER SET** on the remote.  
If you are setting the clock for the first time, go to step 5.
- 3 Press **⏮** or **⏭** on the remote repeatedly until “**CLOCK SET?**” appears in the display.
- 4 Press **ENTER/YES** on the remote.  
The hour indication flashes.
- 5 Press **⏮** or **⏭** on the remote repeatedly to set the hour.
- 6 Press **ENTER/YES** or **CURSOR→** on the remote.  
The minute indication flashes.
- 7 Press **⏮** or **⏭** on the remote repeatedly to set the minute.
- 8 Press **ENTER/YES** on the remote.  
The clock will begin operating.

To reset the system clock  
 Start over from step 1.

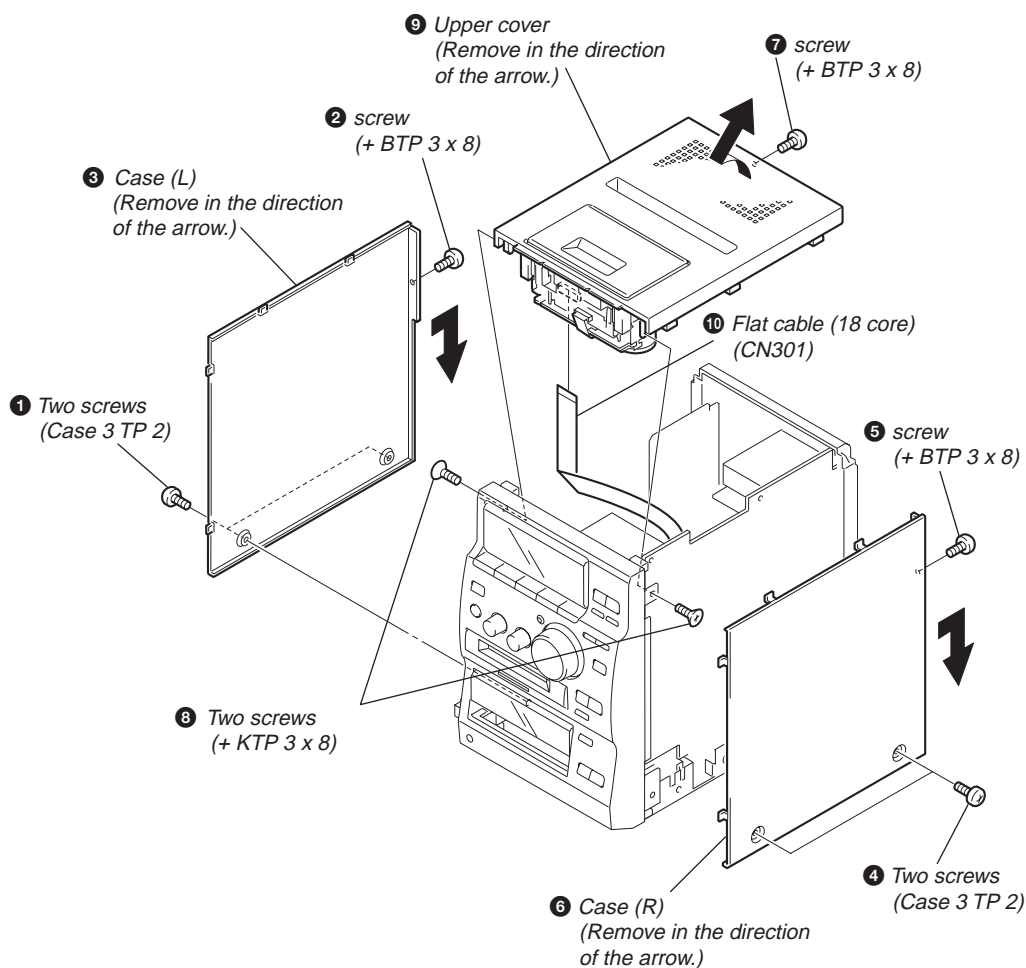
## SECTION 3 DISASSEMBLY

- The equipment can be removed using the following procedure.

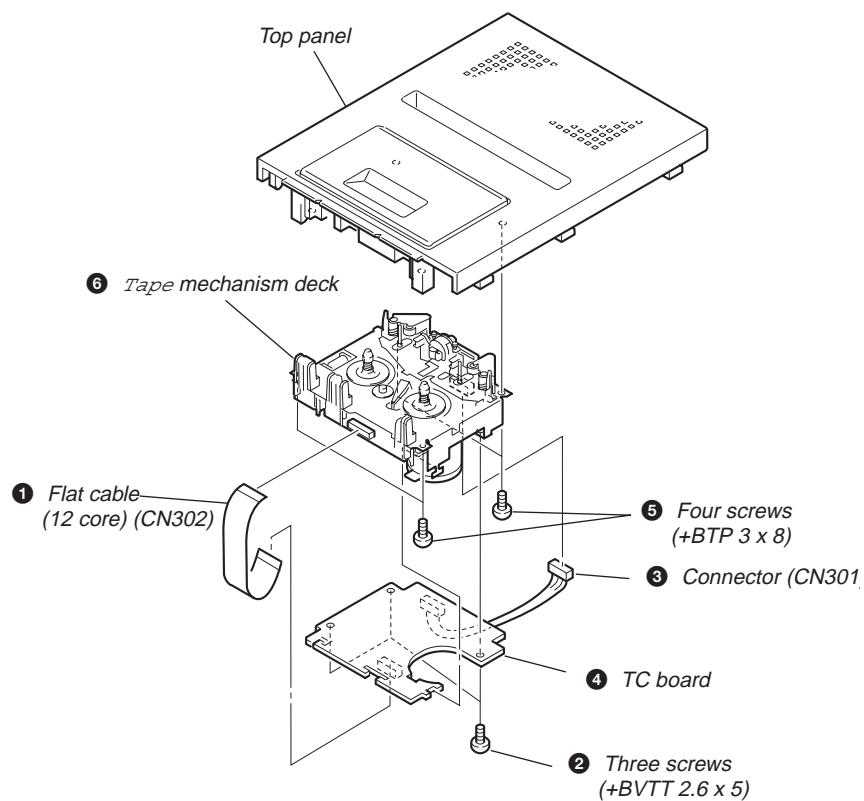


**Note:** Follow the disassembly procedure in the numerical order given.

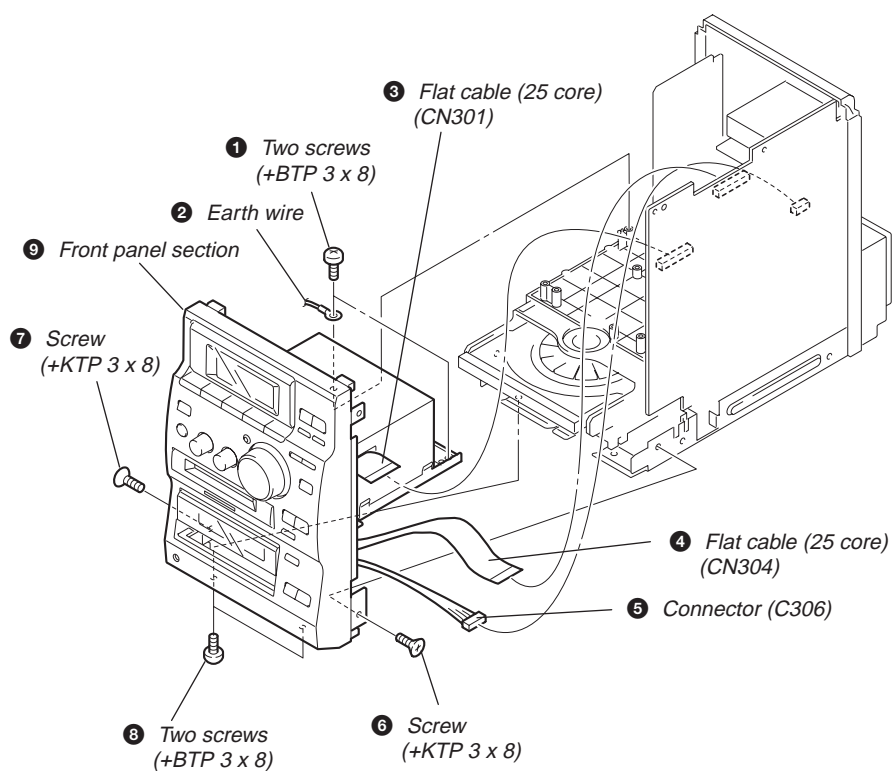
### 3-1. UPPER COVER AND CASE (L), (R)



## 3-2. TAPE MECHANISM DECK

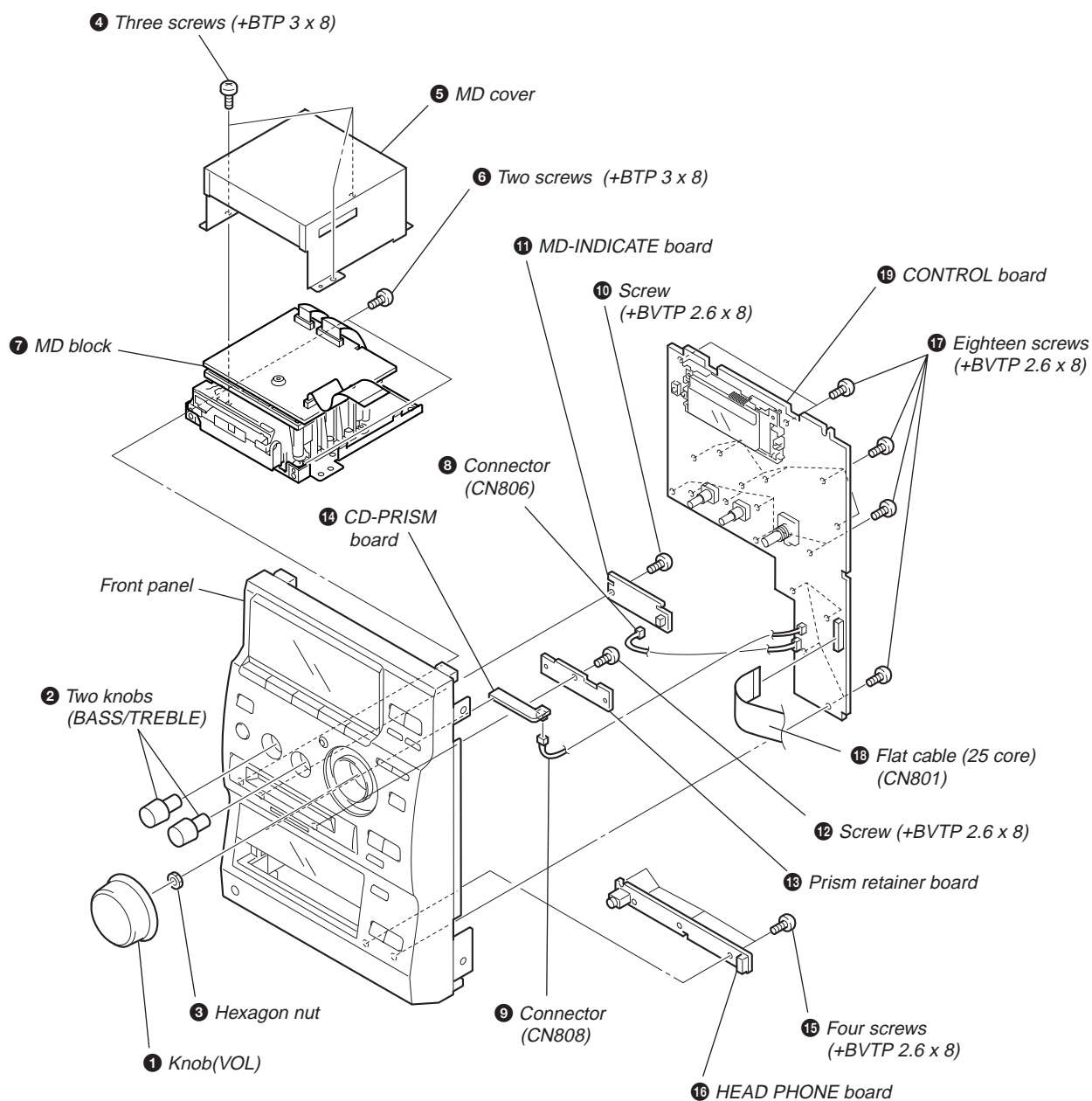


## 3-3. FRONT PANEL SECTION

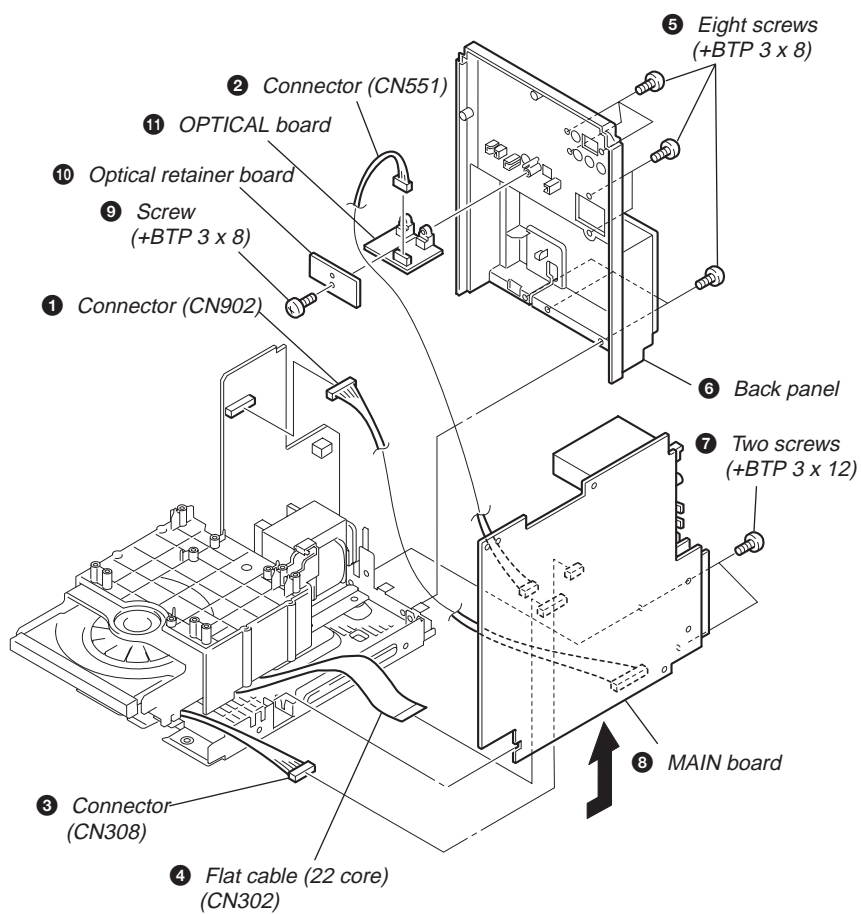




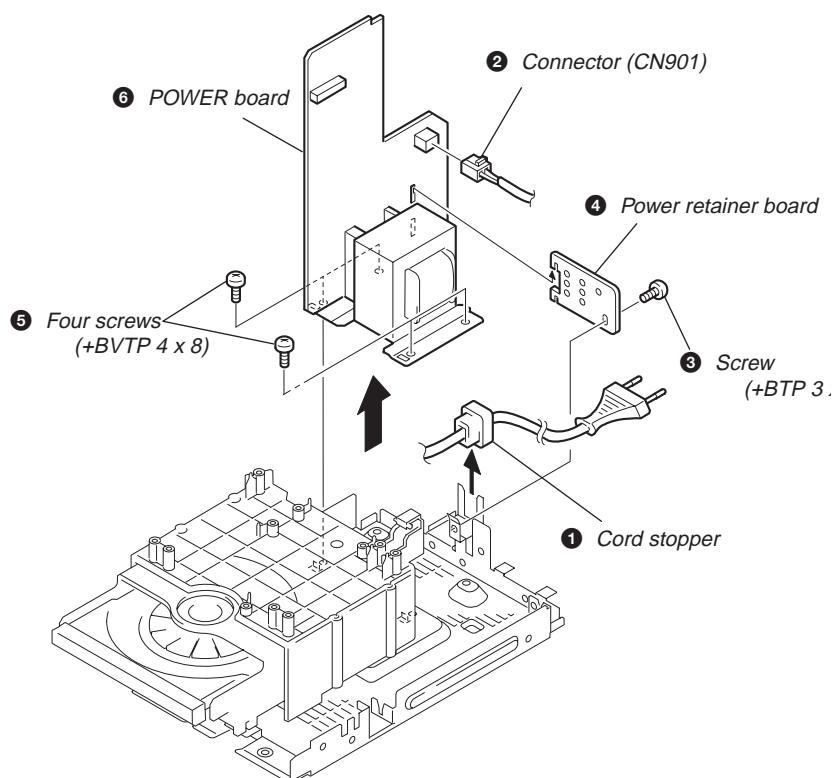
## 3-4. PANEL SECTION

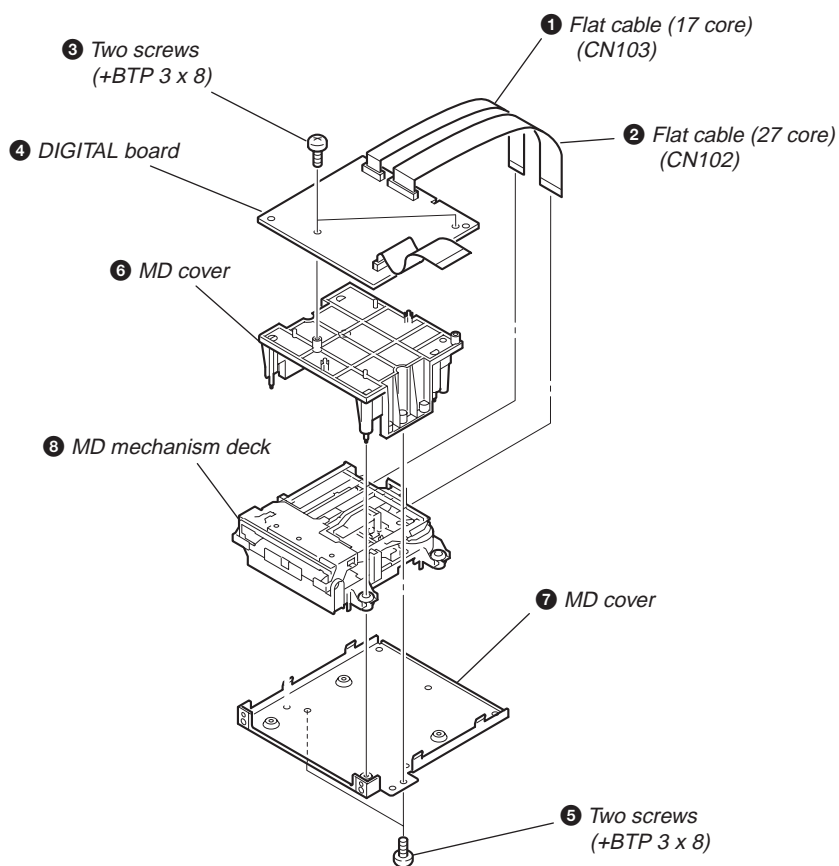
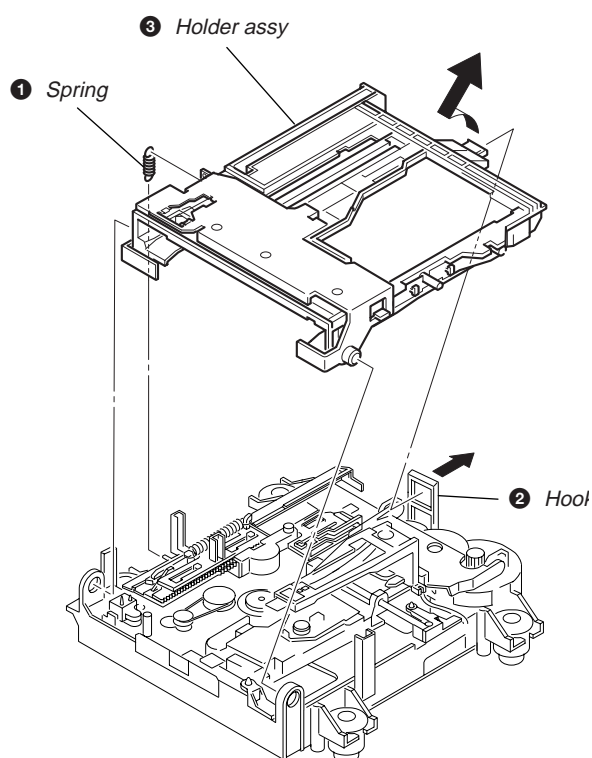


## 3-5. BACK PANEL AND MAIN BOARD

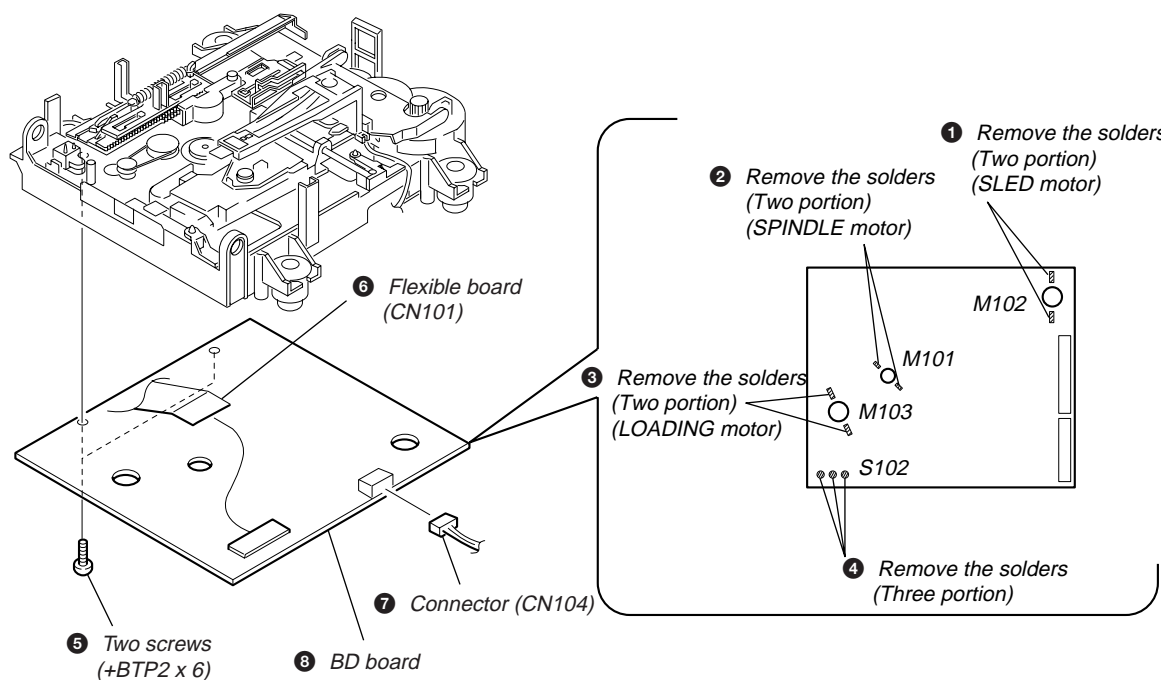


## 3-6. POWER BOARD

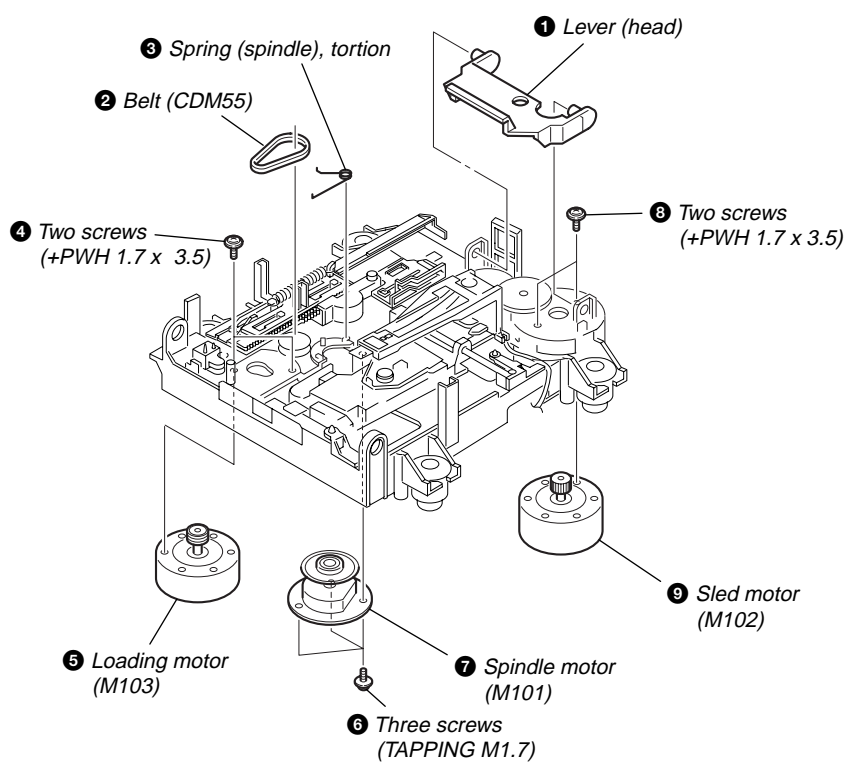


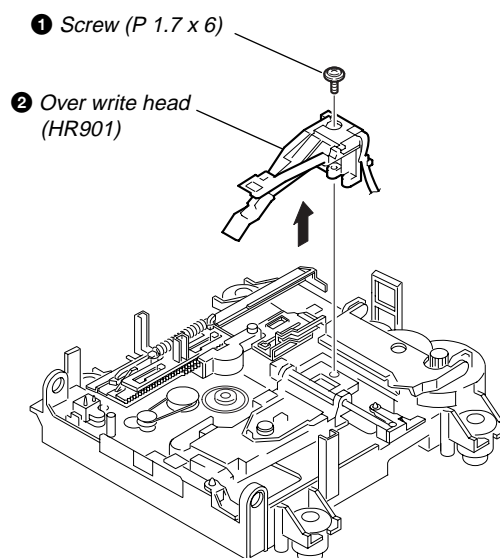
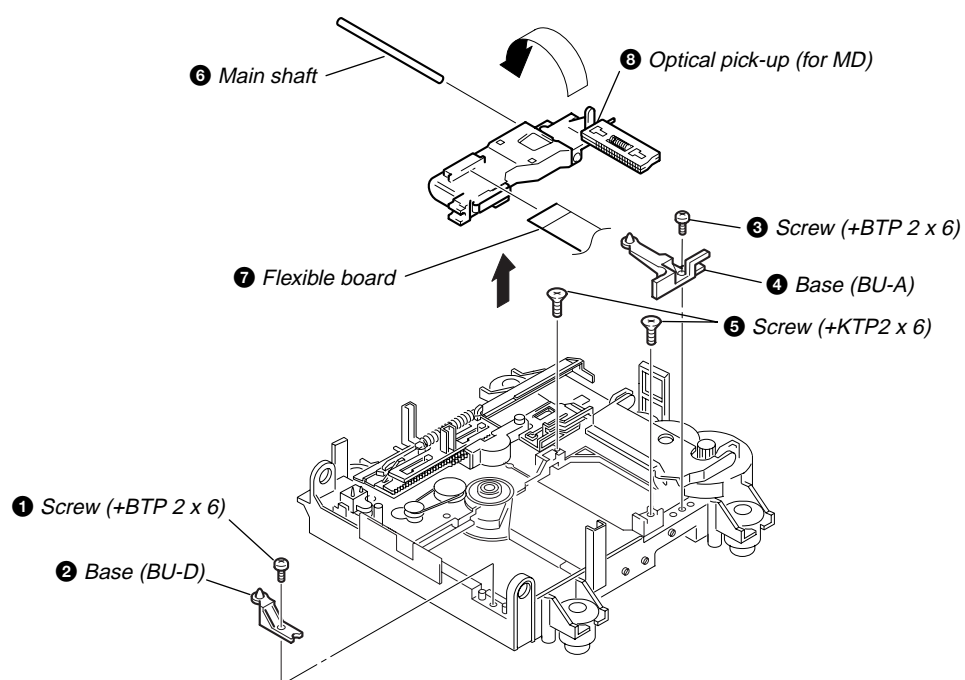
**3-7. MD MECHANISM DECK SECTION****3-8. MD BASE UNIT**

## 3-9. BD BOARD

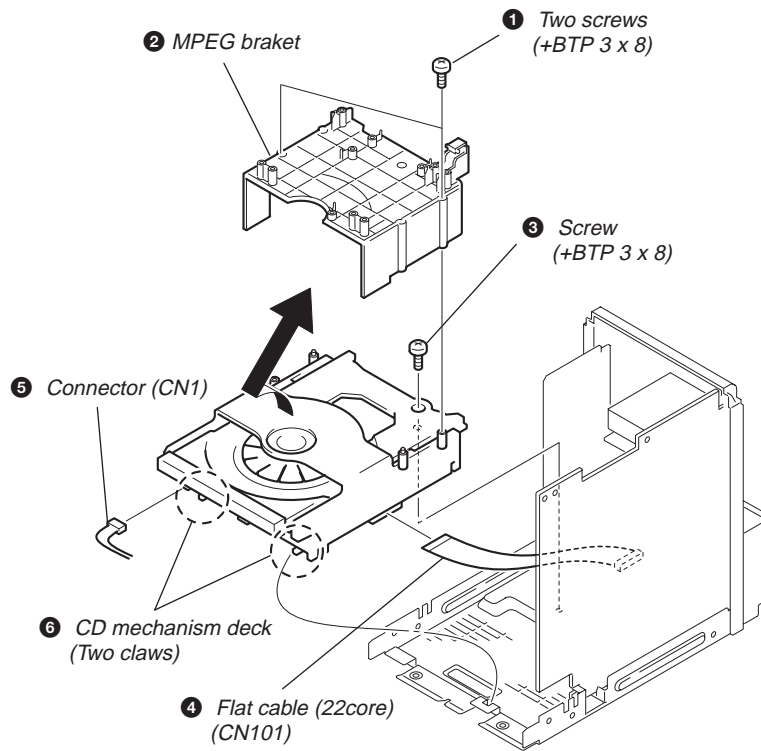


## 3-10. MOTOR SECTION

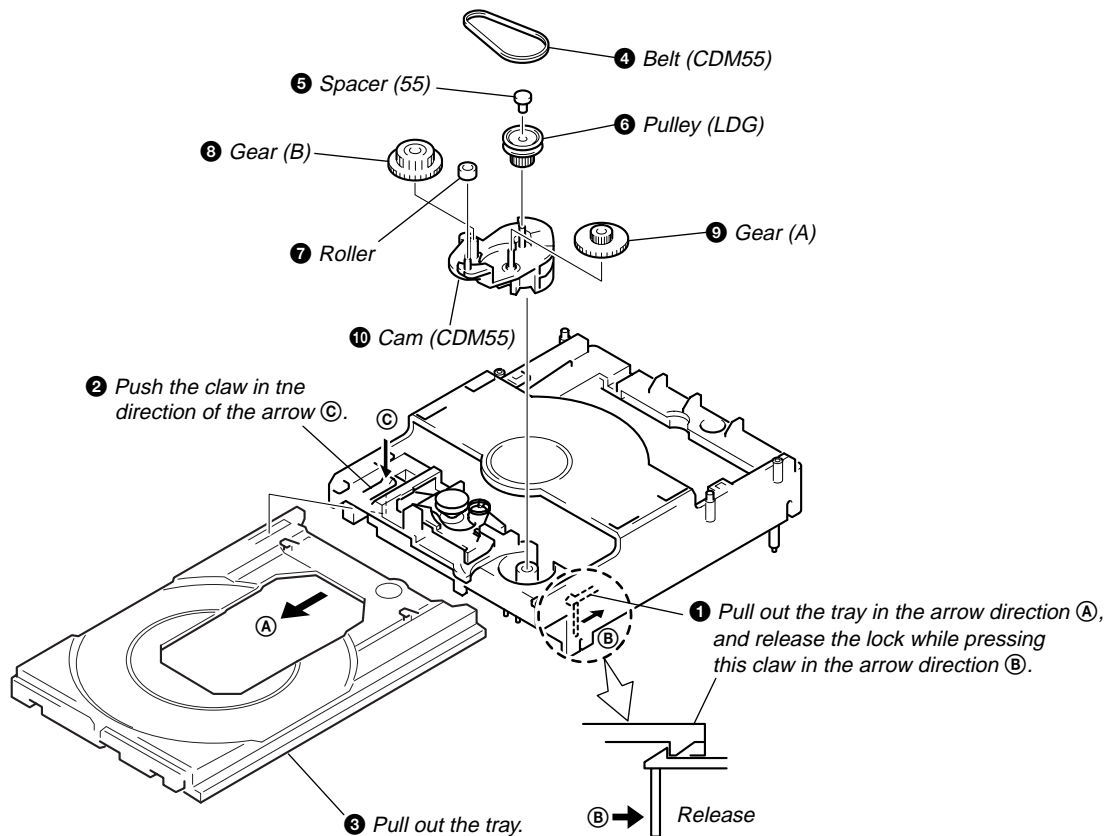


**3-11. OVER WRITE HEAD (HR901)****3-12. OPTICAL PICK-UP (MD)**

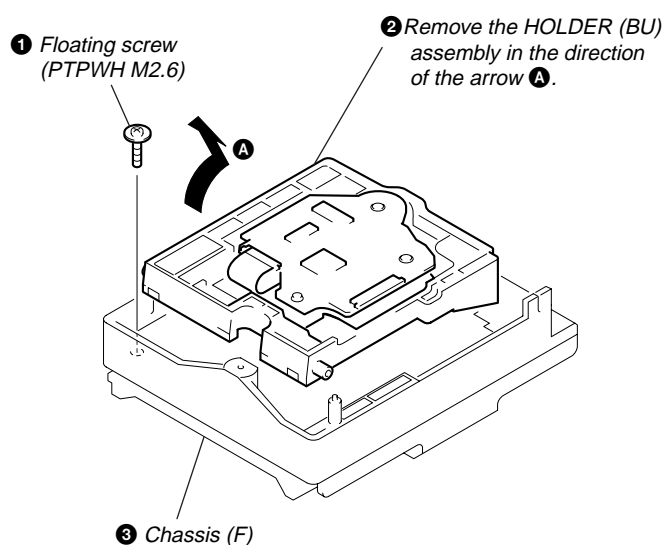
## 3-13. CD MECHANISM DECK SECTION



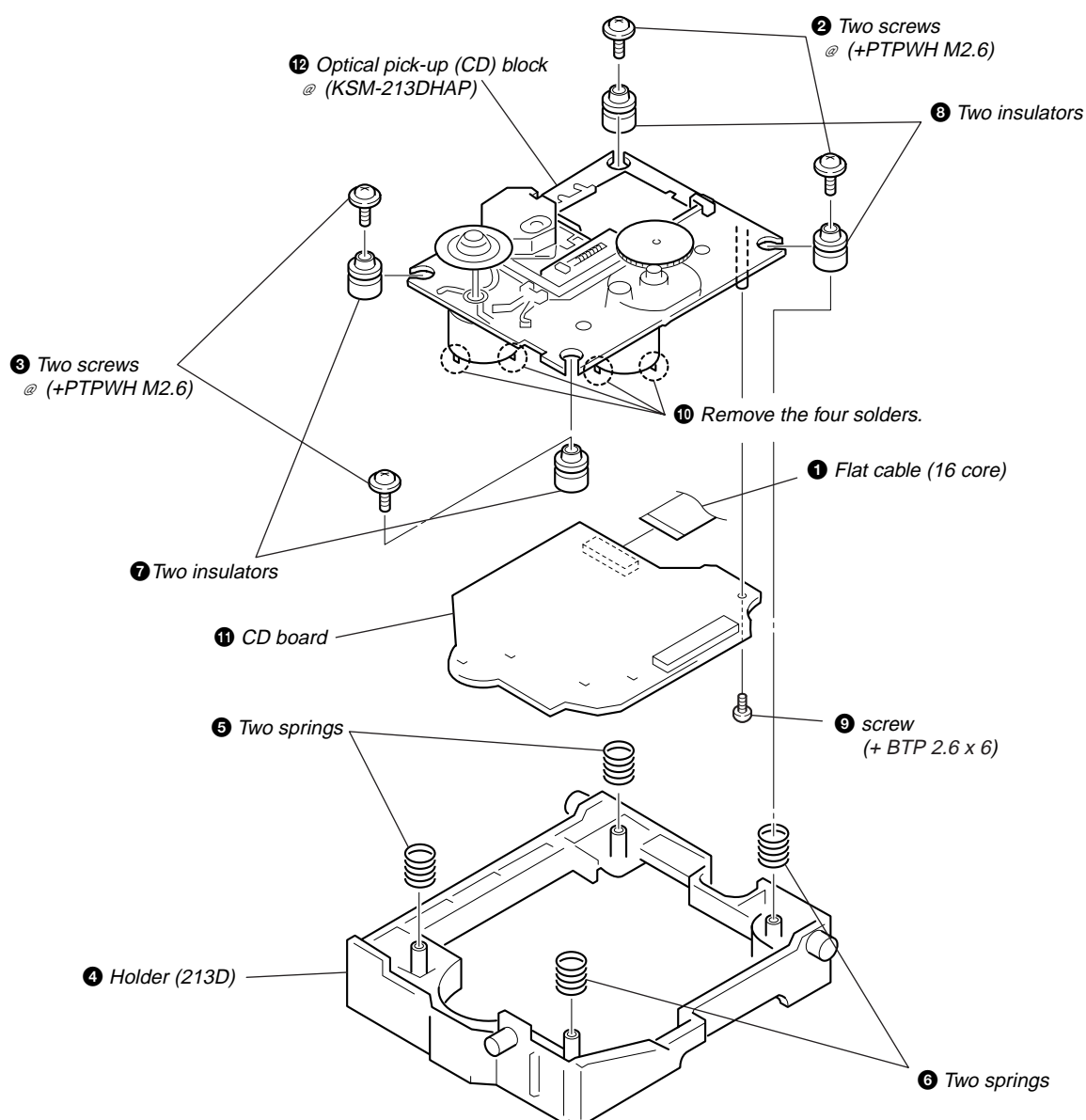
## 3-14. TRY, GEAR AND D CAM SECTION (CDM55)



## 3-15. CD BASE UNIT (CDM55)



## 3-16. OPTICAL PICK-UP (CD) BLOCK SECTION (KSM-213DHAP)



## SECTION 4

### TEST MODE

**Note 1:** About “R”

As this unit has only a few buttons, some operations require the use of remote commander (RM-SCP500/provided with unit: 1-476-754-11) buttons. These operations are indicated as “R” in this manual.

Example: **MENU/NO “R”**...Press the **MENU/NO** button of the remote commander.

**Note 2:** Incorrect operations may be performed if the MD test mode is not entered properly.

In this case, press the **I/⏻** button to turn the power off, and retry to enter the MD test mode.

**[Cold Reset]**

- The cold reset clears all data including preset data stored in the RAM to initial conditions. Execute this mode when returning the set to the customers.

**Procedure:**

- Press **I/⏻** button to turn the set ON.
- Press three buttons **BAND**, **REC MODE** and **▲**(CD) simultaneously.
- Press **I/⏻** button again, the LCD displays “Initialize” and the set is reset.

- Initialized conditions

FUNCTION : TUNER FM 87.5MHz

VOLUME : MIN

DSG : ON

**[PANEL Test Mode]**

- This mode is used to check the software version, LCD, LED and keyboard.

**Procedure:**

- Press three buttons **■**(TAPE), **REC MODE** and **▲**(CD) simultaneously.
- LEDs and LCD are all turned on.
- When you want to enter the software version display mode, press **REPEAT/STEREO/MONO**. The model name and destination are displayed and “MD” and “CD” segments flash.
- Each time **REPEAT/STEREO/MONO** is pressed, the display changes MC, GC, CD, CDD, CDMA, CDMB, BDA, BDB, ST, TA, TM, TC and MD in this order, and returns to the top of the version display.
- When **REC MODE** is pressed while the version numbers are being displayed, year, month and day of the software creation appear. When **REC MODE** is pressed again, the display returns to the software version display. When **REPEAT/STEREO/MONO** is pressed while year, month and day of the software creation are being displayed, the year, month and day of creation of the software versions are displayed in the same order of version display.
- Press **PLAYMODE/DIRECTION** button, and the key check mode is activated. In the key check mode, the LCD displays “K 0 J 0 V 0”. Each time a button is pressed, “K 0” value increases. However, once a button is pressed, it is no longer taken into account. “J 0” value increases like 1, 2, 3.... if rotating **BASS** or **TREBLE** knob clockwise, or it decreases like 0, 9, 8.... if rotating counter-clockwise. “V 0” value increases like 1, 2, 3.... if rotating **VOLUME** knob clockwise, or it decreases like 0, 9, 8.... if rotating counter-clockwise.
- To exit from this mode, press three buttons in the same manner as step 1, or disconnect the power cord.

**[MC Test Mode]**

- This mode is used to check operations of the respective sections of Amplifier, Tuner, CD and Tape.




**Procedure:**

- Press the **I/⏻** button to turn on the set.
- Press the three buttons **■**(TAPE), **REC MODE** and **● REC** (MD) simultaneously.
- The “MD” and “TAPE” segments flash.
- When the **VOLUME** knob is rotated clockwise even slightly, the sound volume increases to its maximum and a message “VOLUME MAX” appears for two seconds. then the display returns to the original display.
- When the **VOLUME** knob is rotated counter-clockwise even slightly, the sound volume decreases to its minimum and a message “VOLUME MIN” appears for two seconds, then the display returns to the original display.
- To exit from this mode, press three button **BAND**, **REC MODE** and **▲**(CD) (TAPE) simultaneously or disconnect the power cord.




## MD SECITON

### 1. PRECAUTIONS FOR USE OF TEST MODE












- As operations related to loading will be performed regardless of the test mode operations being performed, be sure to check that the disc is stopped before setting and removing it.  
Even if the  (MD) button is pressed while the disc is rotating during continuous playback, continuous recording, etc., the disc will not stop rotating.  
Therefore, it will be ejected while rotating.  
Be sure to press the  (MD) button after pressing the  button and the rotation of disc is stopped.

#### 1-1. Recording laser emission mode and operating buttons

- Continuous recording mode (CREC 1MODE)
- Laser power check mode (LDPWR CHECK)
- Laser power adjustment mode (LDPWR ADJUST)
- Comparison with initial Iop value written in nonvolatile memory (Iop Compare)
- Write current Iop value in read nonvolatile memory using microprocessor (Iop NV Save)
- Traverse (MO) check (EF MO CHECK)
- Traverse (MO) adjustment (EF MO ADJUST)
- When pressing the  button.


### 2. SETTING THE TEST MODE

The following are two methods of entering the test mode.


- Procedure :**
- Press the  button to turn the power on.
  - Press the  button to set the MD function.
  - Press three buttons of , , and  (MD) simultaneously.  
When the test mode is set, "[Check]" will be displayed. Pressing the  "R" or  "R" button between the following three groups; ...  [Check]  [Service]  [Develop]  ...

**Note:** Do not use the test mode in the [Develop] group.





If used, the unit may not operate normally.

If the [Develop] group is set accidentally, press the  button immediately to exit the [Develop] group.





### 3. RELEASING THE TEST MODE

Press the  button twice to display "Initialize", then release the MD test mode.

### 4. BASIC OPERATIONS OF THE TEST MODE

All operations are performed using the  "R",  "R",  and .

The functions of these buttons are as follows.

Function name	Function
 "R",  "R" buttons	Changes parameters and modes
 button	Proceeds onto the next step. Finalizes input
 button	Returns to previous step. Stops operations

## 5. SELECTING THE TEST MODE

There are 26 types of test modes as shown below. The groups can be switched by pressing the **◀◀ "R"** or **▶▶ "R"** button. After selecting the group to be used, press the **ENTER/YES "R"** button. After setting a certain group, pressing the **◀◀ "R"** or **▶▶ "R"** button switches modes shown below.

Refer to "Group" in the table for details can be selected.

All items used for servicing can be treated using group [Service]. So be carefully not to enter other groups by mistake.

**Note:** Do not use the test mode in the [Develop] group.

If used, the unit may not operate normally.

If the [Develop] group is set accidentally, press the **MENU/NO "R"** button immediately to exit the [Develop] group.

Display	No.	Details	Mark	Group	
				Check	Service
AUTO CHECK	C01	Automatic self-diagnosis			○
Err Display	C02	Error history display, clear			○
TEMP ADJUST	C03	Temperature compensation offset adjustment			○
LDPWR ADJUST	C04	Laser power adjustment			○
Iop Write	C05	Iop data writing			○
Iop NV Save	C06	Writes current Iop value in read nonvolatile memory using microprocessor			○
EF MO ADJUST	C07	Traverse (MO) adjustment			○
EF CD ADJUST	C08	Traverse (CD) adjustment			○
FBIAS ADJUST	C09	Focus bias adjustment			○
AG Set (MO)	C10	Auto gain output level adjustment (MO)			○
AG Set (CD)	C11	Auto gain output level adjustment (CD)			○
TEMP CHECK	C12	Temperature compensation offset check		○	○
LDPWR CHECK	C13	Laser power check		○	○
EF MO CHECK	C14	Traverse (MO) check		○	○
EF CD CHECK	C15	Traverse (CD) check		○	○
FBIAS CHECK	C16	Focus bias check		○	○
ScurveCHECK	C17	S-curve check	×	○	
VERIFYMODE	C18	Nonvolatile memory check	×	○	
DETRK CHECK	C19	Detrack check	×	○	
0920 CHECK	C25	Most circumference check	×	○	
Iop Read	C26	Iop data display		○	○
Iop Compare	C27	Comparison with initial Iop value written in nonvolatile memory		○	○
ADJ CLEAR	C28	Initialization of nonvolatile memory for adjustment values			○
INFORMATION	C31	Display of microprocessor version, etc.		○	○
CPLAY 1MODE	C34	Continuous playback mode		○	○
CREC 1MODE	C35	Continuous recording mode		○	○

- For details of each adjustment mode, refer to "5. Electrical Adjustments".  
For details of "Err Display", refer to "Self-Diagnosis Function" on page 3.
- If a different mode has been selected by mistake, press the **MENU/NO "R"** button to release that mode.
- Modes with (×) in the Mark column are not used for servicing and therefore are not described in detail. If these modes are set accidentally, press the **MENU/NO "R"** button to release the mode immediately.

### 5-1. Operating the Continuous Playback Mode

- Entering the continuous playback mode
  - Set the disc in the unit. (Whichever recordable discs or discs for playback only are available)
  - Press the **◀◀ "R"** or **▶▶ "R"** button to display "CPLAY 1MODE" (C34).
  - Press the **ENTER/YES "R"** button to change the display to "CPLAY1MID".
  - When access completes, the display changes to "C = 0000 AD = 00".

**Note:** The numbers "00" displayed show you error rates and ADER.

- Changing the parts to be played back

- Press the **ENTER/YES "R"** button during continuous playback to change the display as below.

"CPLAY 1MID" → "CPLAY 1OUT" → "CPLAY 1IN" →

When pressed another time, the parts to be played back can be moved.

- When access completes, the display changes to "C = 0000 AD = 00".

**Note:** The numbers "00" displayed show you error rates and ADER.

- Ending the continuous playback mode

- Press the **MENU/NO "R"** button. The display will change to "CPLAY 1MODE" (C34).
- Press the **▲ (MD)** button and take out the disc.

**Note:** The playback start addresses for IN, MID, and OUT are as follows.

IN : 40h cluster  
MID : 300h cluster  
OUT : 700h cluster

### 5-2. Operating the Continuous Recording Mode (Use only when performing self-recording/palyback check)

- Entering the continuous recording mode
  - Set a recordable disc in the unit.
  - Press the **◀◀ "R"** or **▶▶ "R"** button to display "CREC 1MODE" (C35).
  - Press the **ENTER/YES "R"** button to change the display to "CREC 2MID".
  - When access completes, the display changes to "CREC (10000)" and "REC" is displayed.

**Note:** The numbers "00" displayed shows you the recording position addresses.

- Changing the parts to be recorded

- When the **ENTER/YES "R"** button is pressed during continuous recording, the display changes as below.

"CREC 1MID" → "CREC 1OUT" → "CREC 1IN" →

When pressed another time, the parts to be recorded can be changed. "REC" goes off.

- When access completes, the display changes to "CREC (10000)" and "REC" is displayed.

**Note:** The numbers "00" displayed shows you the recording position addresses.

- Ending the continuous recording mode

- Press the **MENU/NO "R"** button. The display changes to "CREC 1MODE" (C35) and "REC" goes off.
- Press the **▲ (MD)** button and take out the disc.

**Note 1:** The recording start addresses for IN, MID, and OUT are as follows.

IN : 40h cluster  
MID : 300h cluster  
OUT : 700h cluster

**Note 2:** The **MENU/NO "R"** button can be used to stop recording anytime.

**Note 3:** Do not perform continuous recording for long periods of time above 5 minutes.

**Note 4:** During continuous recording, be careful not to apply vibration.

## 6. FUNCTIONS OF OTHER BUTTONS

Function	Contents
▶    MD	Sets continuous playback when this is pressed in the STOP state. When this is pressed during continuous playback, playback position moves.
■ (MD)	Stops continuous playback and continuous recording
▶▶ "R"	The sled moves to the outer circumference only when this is pressed
◀◀ "R"	The sled moves to the inner circumference only when this is pressed
PLAY MODE	Switches the spindle servo mode (CLV S ↔ CLV A)
REC MODE	Switches the displayed digit each time the button is pressed
MD ▲	Ejects the disc
REPEAT STEREO/MONO	Releases the test mode

## 8. AUTOMATIC SELF-DIAGNOSIS FUNCTION

This test mode performs CREC and CPLAY automatically for mainly checking the characteristics of the optical pick-up.

To perform this test mode, the laser power must first be checked.

Perform AUTO CHECK after the laser power check and Iop Compare.

### Procedure:

1. Press the [◀◀ "R"] or [▶▶ "R"] button to display "AUTO CHECK" (C01).
2. Press the [ENTER/YES "R"] button. If "LDPWR ミチェック" is displayed, it means that the laser power check has not been performed. In this case, perform the laser power check and Iop Compare, and then repeat from enter the MD test mode.
3. If a disc is in the mechanical deck, it will be ejected forcibly. "DISC IN" will be displayed in this case. Load a test disc (MDW-74/GA-1) which can be recorded.
4. If a disc is loaded at step 3, the check will start automatically.
5. When "XX CHECK" is displayed, the item corresponding to XX will be performed. When "06 CHECK" completes, the disc loaded at step 3 will be ejected. "DISC IN" will be displayed. Load the check disc (TDYS-1).
6. When the disc is loaded in step 5, the check will automatically be resumed from "07 CHECK".
7. After completing to "0C CHECK" of test item 12, check OK or NG will be displayed. If all items are OK, "CHK ALL OK" will be displayed. If any item is NG, it will be displayed as "NG:xxxx".

When "CHK ALL OK" is displayed, it means that the optical pick-up is normal. Check the operations of other parts (spindle motor, sled motor, etc.).

When displayed as "NG:xxxx", it means that the optical pick-up is faulty. In this case, replace the optical pick-up.

## 9. INFORMATION

Display the software version.

### Procedure:

1. Press the [◀◀ "R"] or [▶▶ "R"] button to display "INFORMATION" (C31).
2. Press the [ENTER/YES "R"] button.
3. The software version will be displayed.
4. Press the [MENU/NO "R"] button to end this mode.

## 10. IOP DATA RECORDING AND DISPLAY WHEN OPTICAL PICK-UP AND NON-VOLATILE MEMORY (IC195 OF BD BOARD) ARE REPLACED

The IOP value labeled on the optical pick-up can be recorded in the non-volatile memory. By recording the value, it will eliminate the need to look at the value on the label of the optical pick-up. When replacing the optical pick-up or non-volatile memory (IC195 of BD (MD) board), record the IOP value on the optical pick-up according to the following procedure.

### Record Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [FUNCTION] button to set the MD function.
3. Press three buttons of [ENTER/START], [▶▶] and [● REC] (MD) simultaneously to enter the MD test mode and display "[Check]".
4. Press the [◀◀ "R"] or [▶▶ "R"] button to display "[Service]".
5. Press the [ENTER/YES "R"] button to display "AUTO CHECK", and press the [▶▶ "R"] button to display "Top Write".
6. Press the [ENTER/YES "R"] button.
7. The display becomes "Ref= @. @. @. @" (@ is an arbitrary number) and the numbers which can be changed will blink.
8. Input the IOP value written on the optical pick-up.  
To select the number : Press the [◀◀ "R"] or [▶▶ "R"] button.  
To select the digit : Press the [REC MODE] button.
9. When the [ENTER/YES "R"] button is pressed, the display becomes "Measu=@. @. @. @" (@ is an arbitrary number).
10. As the adjustment results are recorded for the step 9 value. Leave it as it is and press the [ENTER/YES "R"] button.
11. "Complete!" will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become "Top Write".
12. Press the [REPEAT STEREO/MONO] button twice to complete. "Initialize" will be displayed and release the MD test mode.






### Display Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [FUNCTION] button to set the MD function.
3. Press three buttons of [ENTER/START], [▶▶] and [● REC] (MD) simultaneously to enter the MD test mode and display "[Check]".
4. Press the [◀◀ "R"] or [▶▶ "R"] button to display "[Service]".
5. Press the [ENTER/YES "R"] button to display "AUTO CHECK", and press the [▶▶ "R"] button to display "Top Read".
6. Press the [ENTER/YES "R"] button.
7. "@. @. @. @/##. #" is displayed and the recorded contents are displayed.  
@. @. @ : Indicates the Iop value labeled on the pick-up.  
##. # : Indicates the Iop value after adjustment.
8. Press the [REPEAT STEREO/MONO] button twice to complete. "Initialize" will be displayed and release the MD test mode.

## 11. WHEN MEMORY NG IS DISPLAYED

If the nonvolatile memory data is abnormal, "E001 MEMORY NG" will be displayed so that the MD deck does not continue operations. In this case, set the test mode promptly and perform the following procedure.

### Procedure:

1. Enter the MD test mode.
2. Normally a message for selecting the test mode will be displayed. However if the nonvolatile memory is abnormal, the following will be displayed "INIT EEP?".
3. Press the  (MD) and  (MD) buttons simultaneously.
4. Press the  "R" or  "R" button to display "MDM-7B".
5. Press the  button. If the nonvolatile memory is successfully overwritten, the normal MD test mode will be set and a message to select the MD test mode will be displayed.

## 12. CHECKS PRIOR TO PARTS REPLACEMENT AND ADJUSTMENTS IN MD

Before performing repairs, perform the following checks to determine the faulty locations up to a certain extent. Details of the procedures are described in "Section 6 Electrical Adjustments".

	Criteria for Determination (Unsatisfactory if specified value is not satisfied)	Measure if unsatisfactory
Laser power check (6-2 : See page 31)	<ul style="list-style-type: none"> <li>0.9 mW power Specified value : figure1</li> <li>7.0 mW power Specified value : figure2</li> </ul>	<ul style="list-style-type: none"> <li>Clean the optical pick-up</li> <li>Adjust again</li> <li>Replace the optical pick-up</li> </ul>
	<ul style="list-style-type: none"> <li>Iop (at 7.0mW)</li> <li>Labeled on the optical pick-up</li> <li>Iop value <math>\pm</math> 10mA</li> </ul>	<ul style="list-style-type: none"> <li>Replace the optical pick-up</li> </ul>
Auto check (6-4 : See page 32)	<ul style="list-style-type: none"> <li>Unsatisfactory if displayed as "NG : XXXX"NG (XXXX are arbitrary numbers)</li> </ul>	<ul style="list-style-type: none"> <li>Replace the optical pick-up</li> </ul>
Temperature compensation offset check (6-1 : See page 31)	<ul style="list-style-type: none"> <li>Unsatisfactory if displayed as "T=@@ (##) [NG]" NG (@@, ## are both arbitrary numbers)</li> </ul>	<ul style="list-style-type: none"> <li>Check for disconnection of the circuits around D101 (BD board)</li> <li>Check the signals around IC101, IC151, CN102, CN103 (BD board)</li> </ul>

### Note:

The criteria for determination above is intended merely to determine if satisfactory or not, and does not serve as the specified value for adjustments. When performing adjustments, use the specified values for adjustments.

Figure1:

SPECIFIED VALUE	KMS-260B	0.85 to 0.91 mW
	KMS-260E	0.90 to 0.96 mW

Figure2:





SPECIFIED VALUE	KMS-260B	6.8 to 7.2 mW
	KMS-260E	7.0 to 7.5 mW








## CD SECITON

### [CD SERVO Test Mode]

- Use this mode when checking CD servo.

### Procedure:

1. Press  button to turn the set ON.
2. Select the function "CD".
3. Press three buttons  (TAPE),  and  (CD) simultaneously.
4. Press the appropriate button for the following tests.

Button	Function	Button	Function
 (CD)	TEST 1	PLAY MODE DIRECTION	TEST 6
 (CD)	TEST 2	 (CD)	TEST 7
	TEST 3	 (MD)	TEST 8
	TEST 4	 (TAPE)	TEST 9
REPEAT/STEREO/MONO	TEST 5		

5. To exit from this mode, turn off the set.

## SECTION 5 MECHANICAL ADJUSTMENTS

### Precaution

- Clean the following parts with a denatured alcohol-moistened swab:
 

record/playback heads	pinch rollers
erase head	rubber belts
capstan	idlers
- Demagnetize the record/playback head with a head demagnetizer.
- Do not use a magnetized screwdriver for the adjustments.
- The adjustments should be performed with the rated power supply voltage unless otherwise noted.

### Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	3.04 – 6.96 N • m (31 to 71 g • cm) (0.43 – 0.98 oz • inch)
FWD back tension	CQ-102C	0.20 – 0.58 N • m (2 to 6 g • cm) (0.02 – 0.08 oz • inch)
REV	CQ-102RC	3.04 – 6.96 N • m (31 to 71 g • cm) (0.43 – 0.98 oz • inch)
REV back tension	CQ-102RC	0.20 – 0.58 N • m (2 to 6 g • cm) (0.02 – 0.08 oz • inch)
FF/REW	CQ-201B	6.97 – 14.02 N • m (71 to 143 g • cm) (0.98 – 1.99 oz • inch)
FWD tension	CQ-403A	0.98 N • m or more (100 g or more) (3.53 oz or more)
REV tension	CQ-403R	0.98 N • m or more (100 g or more) (3.53 oz or more)

## SECTION 6 ELECTRICAL ADJUSTMENTS

### DECK SECTION

**0 dB=0.775V**

- Demagnetize the record/playback head with a head demagnetizer.
- Do not use a magnetized screwdriver for the adjustments.
- After the adjustments, apply suitable locking compound to the parts adjusted.
- The adjustments should be performed with the rated power supply voltage unless otherwise noted.
- The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
- The adjustments should be performed for both L-CH and R-CH.
- Switches and controls should be set as follows unless otherwise specified.

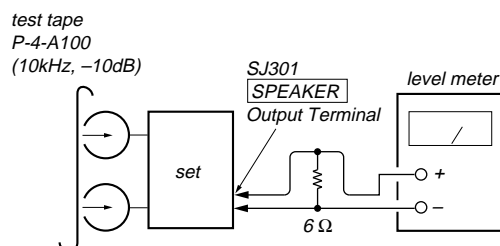
Tape	Signal	Used for
P-4-A100	10 kHz, -10 dB	Azimuth Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment
P-4-L300	315 Hz, 0 dB	Level Adjustment

**Note:** Standard Volume Point is +10 dBs at SPEAKER Output Level (6Ω load resistance) during playbacking P-4-L300 Test Tape. (DSG OFF, TREBLE/BASS CENTER)

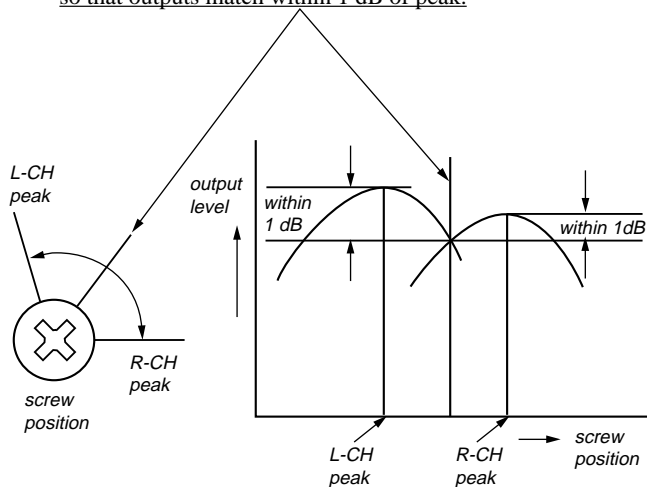
### Record/Playback Head Azimuth Adjustment

#### Procedure:

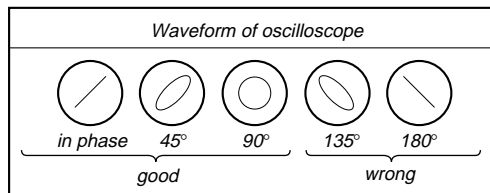
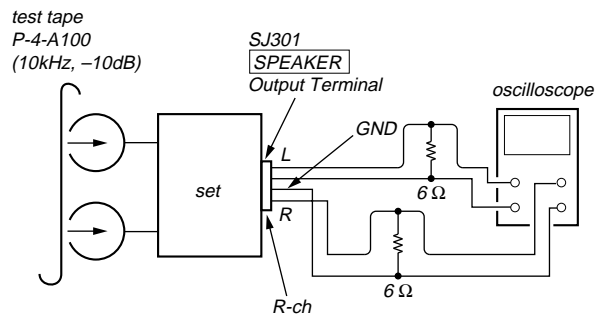
- Mode : Playback



- Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1 dB of peak.

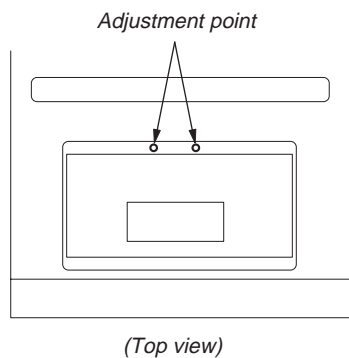


## 3. Mode: Playback



4. After the adjustments, apply suitable locking compound to the parts adjusted.

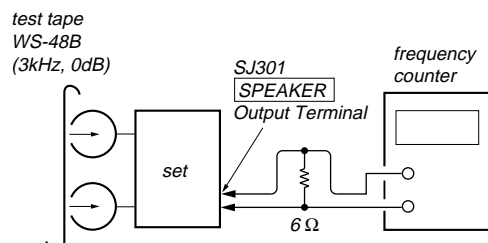
## Adjustment Location:



## Tape Speed Check

## Procedure:

1. MODE : Playback.



2. Insert the WS-48B into deck.  
3. Press the ◀▶ button of deck.  
4. Check the reading of frequency counter becomes  $3000 \pm 90$  Hz.

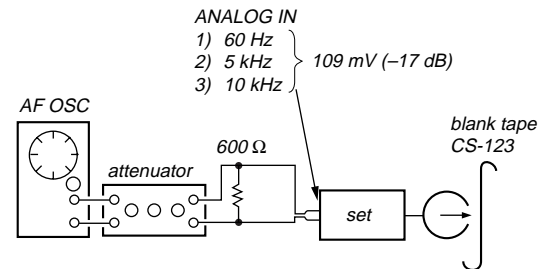
## Sample Value of Wow and flutter

W.RMS (JIS) less than 0.35%  
(test tape: WS-48B)

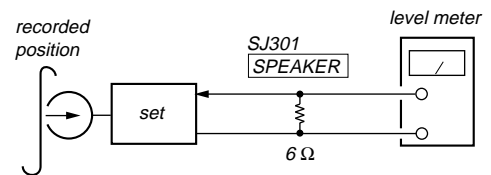
## Record Level Check

## Procedure:

- Press **FUNCTION** button to select ANALOG IN. (This step is not necessary if the above test mode has already been set.)
- Insert a tape into deck, press the **REC** (TAPE) button, and then press the **II** (TAPE) button to start recording.
- Mode: Record



4. Mode: Playback



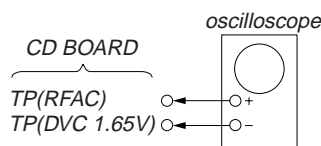
5. The playback output level should be  $-4.5 \pm 3$  dB (60 Hz),  $1 \pm 3$  dB (8 kHz) and  $-3 \pm 3$  dB (10 kHz).

## CD SECTION

Note :

1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

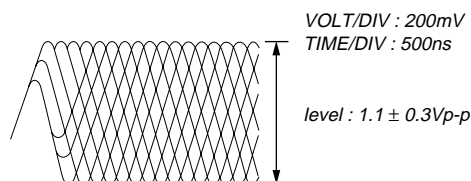
### RF Level Check



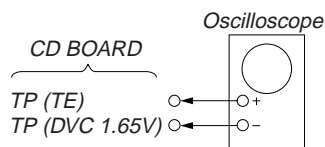
Procedure :

1. Connect oscilloscope to TP (RFAC) and TP (DVC 1.65V).
2. Turned Power switch on.
3. Load a disc (YEDS-18) and playback the number five track.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

**Note:** Clear RF signal waveform means that the shape “◊” can be clearly distinguished at the center of the waveform.

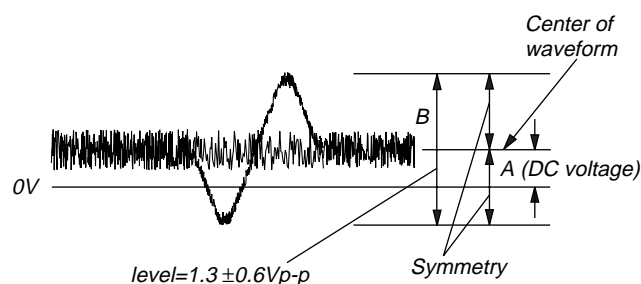


### E-F Balance (1 Track jump) Check



Procedure:

1. Connect oscilloscope to TP (TE) and TP (DVC 1.65V).
2. Turned Power switch on.
3. Load a disc (YEDS-18) and playback the number five track.
4. Press the **▶||** button. (Becomes the 1 track jump mode.)
5. Confirm that the level B and A (DC voltage) on the oscilloscope waveform.

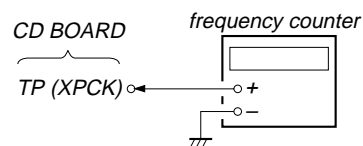


Specification level:  $\frac{A}{B} \times 100 = \text{less than } \pm 22\%$

### RF PLL Free-run Frequency

Procedure :

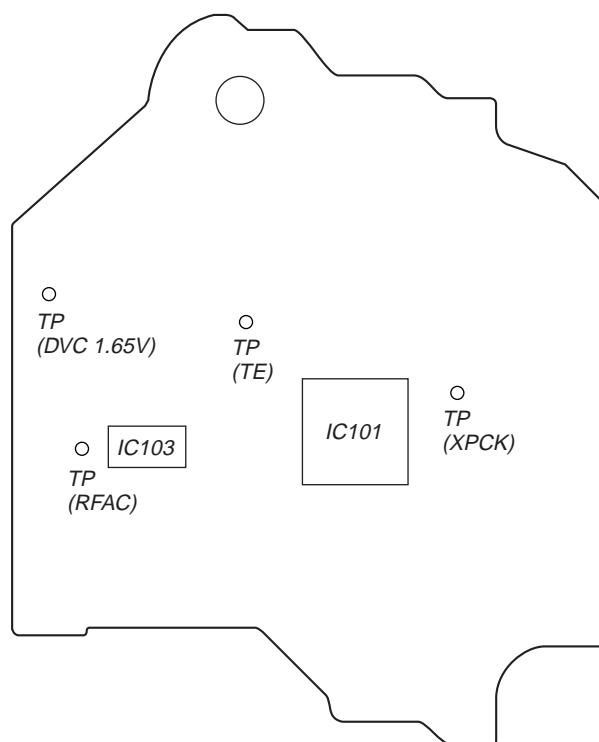
1. Connect frequency counter to TP (XPCK) with lead wire.



2. Turned Power switch on.
3. Put the disc (YEDS-18) in to play the number five track. Confirm that reading on frequency counter is 4.3218MHz.

Test Point Location :

[CD BOARD] — SIDE B —





**MD SECTION****Note 1:** About “R”

As this unit has only a few buttons, some operations require the use of remote commander (RM-SCP500/provided with unit: 1-476-754-11) buttons. These operations are indicated as “R” in this manual.

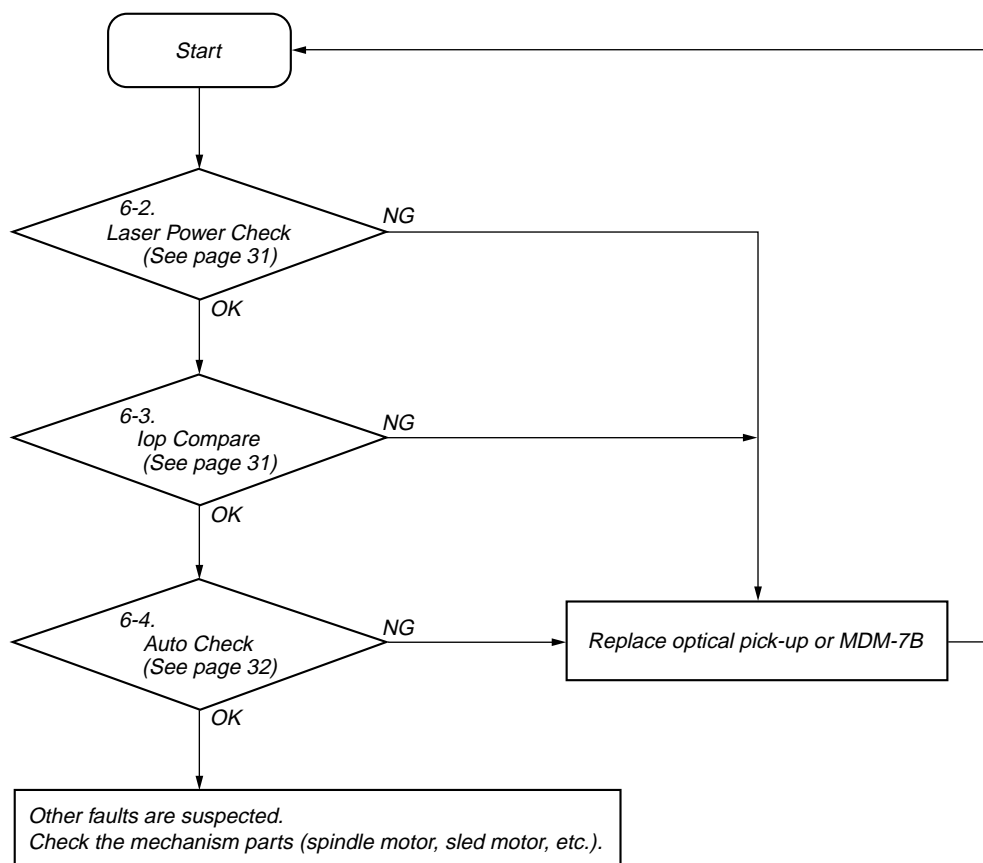
Example: **MENU/NO** “R” ...Press the **MENU/NO** button of the remote commander.

**Note 2:** Incorrect operations may be performed if the MD test mode is not entered properly.

In this case, press the **I/⏻** button to turn the power off, and retry to enter the MD test mode.

**1. PARTS REPLACEMENT AND ADJUSTMENT**

If malfunctions caused by optical pick-up such as sound skipping are suspected, follow the following check.

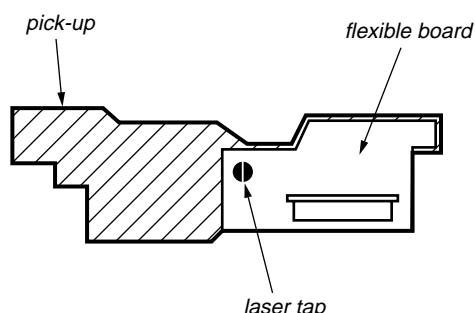
**Check before replacement**

## 2. PRECAUTIONS FOR CHECKING LASER DIODE EMISSION

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eye-sight.

## 3. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260B/260E)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



**Optical pick-up flexible board**

## 4. PRECAUTIONS FOR ADJUSTMENTS

- When replacing the following parts, perform the adjustments and checks with the mark ○ in the order shown in the following table.
- Set the MD test mode when performing adjustments. After completing the adjustments, exit the MD test mode. Perform the adjustments and checks in “Group Service” of the MD test mode.
- Perform the adjustments to be needed in the order shown.
- Use the following tools and measuring devices.
  - Check Disc (TDYS-1) (Part No. : 4-963-646-01)
  - Test Disk (MDW-74/GA-1) (Part No. : 4-229-747-01)
  - Laser power meter LPM-8001 (Part No. : J-2501-046-A) or MD Laser power meter 8010S (Part No. : J-2501-145-A)\*1
  - Oscilloscope (Measure after performing CAL of prove.)
  - Digital voltmeter
  - Thermometer
  - Jig for checking BD board waveform (Part No. : J-2501-196-A)
- When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope. (VC and ground will become short-circuited.)
- Using the above jig enables the waveform to be checked without the need to solder. (Refer to Servicing Notes on page 8.)
- As the disc used will affect the adjustment results, make sure that no dusts nor fingerprints are attached to it.

### \*1 Laser power meter

When performing laser power checks and adjustment (electrical adjustment), use of the new MD laser power meter 8010S (Part No. J-2501-145-A) instead of the conventional laser power meter is convenient.

It sharply reduces the time and trouble to set the laser power meter sensor onto the objective lens of optical pick-up.

Adjustment	Parts to be replaced						
	Optical Pick-up	IC101	IC102	IC151	IC190	IC195	D101
7. Initial setting of adjustment value	○	×	×	×	×	○	×
8. Recording of Iop information	○	×	×	×	×	○	×
9. Temperature compensation offset adjustment	×	○	×	×	×	○	○
10. Laser power adjustment	○	×	×	×	○	○	×
11. Iop NV Save	○	×	○	×	○	○	×
12. Traverse adjustment	○	○	×	○	×	○	×
13. Focus bias adjustment	○	○	×	○	×	○	×
16. Auto gain adjustment	○	○	×	○	×	○	×
6-4. AUTO CHECK	○	○	×	○	○	○	×

## 5. USING THE CONTINUOUSLY RECORDED DISC

\* This disc is used in focus bias adjustment and error rate check.  
The following describes how to create a continuous recording disc.

1. Insert a disc (blank disc) commercially available.
2. Press the **◀◀"R"** or **▶▶"R"** button and display "CREC 1MODE" (C35).
3. Press the **ENTER/YES "R"** button again to display "CREC 1 MID".  
Display "CREC 1(0300)" and start to recording.
4. Complete recording within 5 minutes.
5. Press the **MENU/NO "R"** button and stop recording .
6. Press the **▲(MD)** button and remove the disc.

The above has been how to create a continuous recorded data for the focus bias adjustment and error rate check.

**Note:** Be careful not to apply vibration during continuous recording.

## 6. CHECKS PRIOR TO REPAIRS

These checks are performed before replacing parts according to "approximate specifications" to determine the faulty locations. For details, refer to "Checks Prior to Parts Replacement and Adjustments in MD" (see page 25).

### 6-1. Temperature Compensation Offset Check

When performing adjustments, set the internal temperature and room temperature to 22 to 28°C.

#### Procedure:

1. Press the **◀◀"R"** or **▶▶"R"** button to display "TEMP CHECK" (C12).
2. Press the **ENTER/YES "R"** button.
3. "T=@@ (##) [OK]" should be displayed. If "T=@@ (##) [NG]" is displayed, it means that the results are bad.  
(@@ indicates the current value set, and ## indicates the value written in the non-volatile memory.)

### 6-2. Laser Power Check

Before starting adjustment;

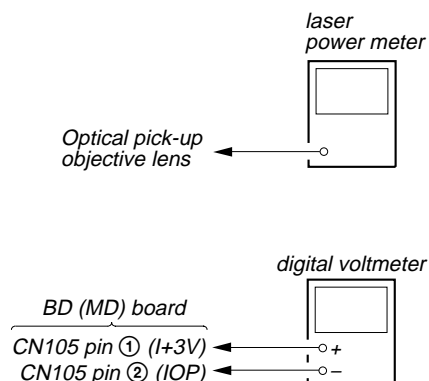
The laser power adjustment value changes depending upon the types of the optical pick-up (KMS-260B or KMS-260E).

Check the type of the optical pick-up before starting adjustment.  
(See the illustrations "The method of identifying the optical pick-up" on page 35)

Before checking, check the Iop value of the optical pick-up.

(Refer to 8. Recording and Displaying the Iop Information (see page 34))

#### Connection:



#### Procedure:

1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the **◀◀"R"** button or **▶▶"R"** button to move the optical pick-up.)  
Connect the digital volt meter to CN105 pin ① (I+3V) and CN105 pin ② (IOP).
2. Then, press the **◀◀"R"** or **▶▶"R"** button and display "LDPWR CHECK" (C13).
3. Press the **ENTER/YES "R"** button once and display "LD 0.9mW\$0.00". Check that the reading of the laser power meter becomes specified value.

SPECIFIED VALUE	KMS-260B	0.85 to 0.91 mW
	KMS-260E	0.90 to 0.96 mW

4. Press the **ENTER/YES "R"** button once more and display "LD 8.4mW\$0.00". Check that the reading the laser power meter and digital volt meter satisfy the specified value.

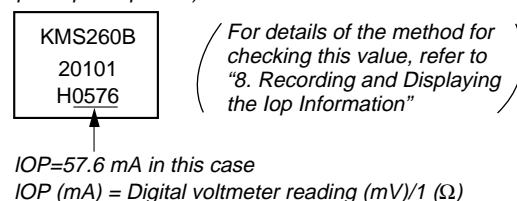
#### Specified Value:

Laser power meter reading :

KMS-260B	6.8 to 7.2 mW
KMS-260E	7.0 to 7.5 mW

Digital voltmeter reading : Optical pick-up displayed value  $\pm 10\%$

(Optical pick-up label)



5. Press the **MENU/NO "R"** button and display "LDPWR CHECK" (C13) and stop the laser emission.  
(The **MENU/NO "R"** button is effective at all times to stop the laser emission.)

**Note:** After step 4, each time the **ENTER/YES "R"** button is pressed, the display will be switched to "LD 0.7W\$0.00" and "LD 6.2mW\$0.00".  
Nothing needs to be performed here.

**Checking Location:** BD (MD) board (see page 38)

### 6-3. Iop Compare

The current Iop value at laser power 7 mW output and reference Iop value (set at shipment) written in the nonvolatile memory are compared, and the rate of increase/decrease will be displayed in percentage.

**Note:** Perform this function with the optical pick-up set at room temperature.

#### Procedure:

1. Press the **◀◀"R"** or **▶▶"R"** button to display "Iop Compare" (C27).
2. Press the **ENTER/YES "R"** button and start measurements.
3. When measurements complete, the display changes to "± xx% yy".  
xx is the percentage of increase/decrease, and OK or NG is displayed at yy to indicate whether the percentage of increase/decrease is within the allowable range.
4. Press the **MENU/NO "R"** button to end.

6-4. Auto Check

This test mode performs CREC and CPLAY automatically for mainly checking the characteristics of the optical pick-up. To perform this test mode, the laser power must first be checked. Perform Auto Check after the laser power check and Iop compare.

Procedure:

1. Press the **◀◀ "R"** or **▶▶ "R"** button to display "AUTO CHECK" (C01).
2. Press the **ENTER/YES "R"** button. If "LDPWR ミチエック" is displayed, it means that the laser power check has not been performed. In this case, perform the laser power check and Iop Compare, and then repeat from enter the MD test mode.
3. If a disc is in the mechanical deck, it will be ejected forcibly. "DISC IN" will be displayed in this case. Load a test disc (MDW-74/GA-1) which can be recorded.
4. If a disc is loaded at step 3, the check will start automatically.
5. When "XX CHECK" is displayed, the item corresponding to XX will be performed.  
When "06 CHECK" completes, the disc loaded at step 3 will be ejected. "DISC IN" will be displayed. Load the check disc (TDYS-1).
6. When the disc is loaded in the step 5, the check will automatically be resumed from "07 CHECK".
7. After completing to "0C CHECK" of test item 12, check OK or NG will be displayed. If all items are OK, "CHK ALL OK" will be displayed. If any item is NG, it will be displayed as "NG:xxxx".

When "CHK ALL OK" is displayed, it means that the optical pick-up is normal. Check the operations of other parts (spindle motor, sled motor, etc.).  
When displayed as "NG:xxxx", it means that the optical pick-up is faulty. In this case, replace the optical pick-up.

6-5. Other Checks

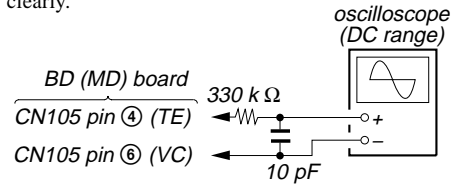
All the following checks are performed by the Auto Check mode. They therefore need not be performed in normal operation.

- 6-6. Traverse Check
- 6-7. Focus Bias Check
- 6-8. C PLAY Check
- 6-9. Self-Recording/Playback Check

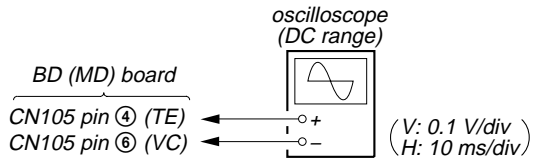
6-6. Traverse Check

**Note 1:** Data will be erased during MO reading if a recorded disc is used in this adjustment.

**Note 2:** If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



Connection:



Procedure:

1. Connect an oscilloscope to CN105 pin ④ (TE) and CN105 pin ⑥ (VC) on the BD (MD) board.
2. Load a disc (any available on the market). (Refer to Note 1)
3. Press the **▶▶ "R"** button to move the optical pick-up outside the pit.
4. Press the **◀◀ "R"** or **▶▶ "R"** button to display "EF MO CHECK" (C14).
5. Press the **ENTER/YES "R"** button to display "EFB = □□ MO-R".  
(Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the **◀◀ "R"** or **▶▶ "R"** button.  
(Read power traverse checking)

Traverse Waveform

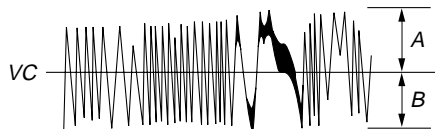


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

7. Press the **ENTER/YES "R"** button to display "EFB = □□ MO-W".
8. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the **◀◀ "R"** or **▶▶ "R"** button.  
(Write power traverse checking)

Traverse Waveform

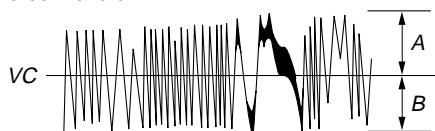


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

9. Press the **[ENTER/YES "R"]** button to display "EFB = 00 MO-P".  
Then, the optical pick-up moves to the pit area automatically and servo is imposed.
10. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the **[◀◀ "R"]** or **[▶▶ "R"]** button.

Traverse Waveform

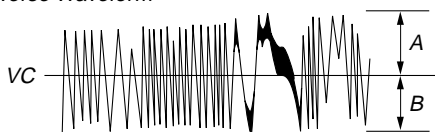


Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

11. Press the **[ENTER/YES "R"]** button to display "EF MO CHECK" (C14).  
The disc stops rotating automatically.
12. Press the **[▲] (MD)** button and take out the disc.
13. Load the check disc (TDYS-1).
14. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button and display "EF CD CHECK" (C15).
15. Press the **[ENTER/YES "R"]** button to display "EFB = 00 CD".  
Servo is imposed automatically.
16. Observe the waveform of the oscilloscope, and check that the specified value is satisfied. Do not press the **[◀◀ "R"]** or **[▶▶ "R"]** button.

Traverse Waveform



Specified value : Below 10% offset value

$$\text{Offset value (\%)} = \frac{|A - B|}{2(A + B)} \times 100$$

17. Press the **[ENTER/YES "R"]** button to display "EF CD CHECK" (C15).
18. Press the **[▲] (MD)** button and take out the check disc (TDYS-1).

**Checking Location:** BD (MD) board (see page 38)

## 6-7. Focus Bias Check

Change the focus bias and check the focus tolerance amount.

### Procedure:

1. Load the test disc (MDW-74/GA-1).
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CPLAY 1MODE" (C34).
3. Press the **[ENTER/YES "R"]** button to display "CPLAY 1MID".
4. Press the **[MENU/NO "R"]** button when "C = 00 AD = 00" is displayed.
5. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "FBIAS CHECK" (C16).
6. Press the **[ENTER/YES "R"]** button to display "0000/00 c = 00".  
The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c =] indicate the focus bias value.  
Check that the C1 error is below 50 and ADER is below 2.
7. Press the **[ENTER/YES "R"]** button to display "0000/00 b = 00".  
Check that the C1 error is about 200 and ADER is below 2.
8. Press the **[ENTER/YES "R"]** button to display "0000/00 a = 00".  
Check that the C1 error is about 200 and ADER is below 2.
9. Press the **[MENU/NO "R"]** button, then press the **[▲] (MD)** button and take out the test disc.

## 6-8. C PLAY Check

### MO Error Rate Check

#### Procedure:

1. Load the test disc (MDW-74/GA-1).
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CPLAY 1MODE" (C34).
3. Press the **[ENTER/YES "R"]** button to display "CPLAY 1MID".
4. The display changes to "C = 0000 AD = 00".
5. If the C1 error rate is below 50, check that ADER is 00.
6. Press the **[MENU/NO "R"]** button to stop playback, then press the **[▲] (MD)** button and take out the test disc.

### CD Error Rate Check

#### Procedure:

1. Load the check disc (TDYS-1).
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CPLAY 1MODE" (C34).
3. Press the **[ENTER/YES "R"]** button to display "CPLAY 1MID".
4. The display changes to "C = 0000 AD = 00".
5. Check that the C1 error rate is below 50.
6. Press the **[MENU/NO "R"]** button to stop playback, then press the **[▲] (MD)** button and take out the check disc.

## 6-9. Self-Recording/playback Check

Prepare a continuous recording disc using the unit to be repaired and check the error rate.

### Procedure:

1. Load a recordable disc (blank disc).
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CREC 1MODE" (C35).
3. Press the **[ENTER/YES "R"]** button to display "CREC 1MID".
4. When recording starts, "REC" and "CREC 1 (@ @ @ @)" (@ @ @ @ is the address) are displayed.
5. About 1 minute later, press the **[MENU/NO "R"]** button to stop continuous recording.
6. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CPLAY 1MODE" (C34).
7. Press the **[ENTER/YES "R"]** button to display "CPLAY 1MID".
8. "C = 0000 AD = 00" will be displayed.
9. Check that the C1 error becomes below 50 and the AD error below 2.
10. Press the **[MENU/NO "R"]** button to stop playback, then press the **[▲] (MD)** button and take out the disc.

7. INITIAL SETTING OF ADJUSTMENT VALUE

Note:

Mode which sets the adjustment results recorded in the non-volatile memory to the initial setting value. However the results of the temperature compensation offset adjustment will not change to the initial setting value.

If initial setting is performed, perform all adjustments again excluding the temperature compensation offset adjustment.

For details of the initial setting, refer to "4. Precautions for Adjustments" (See page 39) and execute the initial setting before the adjustment as required.

Procedure:

1. Press the **◀◀ "R"** or **▶▶ "R"** button to display "ADJ CLEAR" (C28).
2. Press the **ENTER/YES "R"** button. "Complete!" will be displayed momentarily and initial setting will be executed, after which "ADJ CLEAR" (C28) will be displayed.

8. RECORDING AND DISPLAYING THE IOP INFORMATION

The IOP data can be recorded in the non-volatile memory. The IOP value on the optical pick-up label and the IOP value after the adjustment will be recorded. Recording these data eliminates the need to read the label on the optical pick-up.

Recording Procedure:

1. Press the **◀◀ "R"** or **▶▶ "R"** button to display "Iop Write" (C05), and press the **ENTER/YES "R"** button.
2. The display becomes "Ref=@@@.@". (@ is an arbitrary number) and the numbers which can be changed will blink.
3. Input the IOP value on the optical pick-up label.  
To select the number: Press the **◀◀ "R"** or **▶▶ "R"** button.  
To select the digit: Press the **REC MODE** button.
4. When the **ENTER/YES "R"** button is pressed, the display becomes "Measu=@@@.@". (@ is an arbitrary number).
5. As the adjustment results are recorded for the step 4 value. Leave it as it is and press the **ENTER/YES "R"** button.
6. "Complete!" will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become "Iop Write" (C05).

Display Procedure:

1. Press the **◀◀ "R"** or **▶▶ "R"** button to display "IopRead"(C26).
2. "@@.@/###.#" is displayed and the recorded contents are displayed.  
@@.@ indicates the IOP value on the optical pick-up label.  
###.# indicates the IOP value after adjustment
3. To end, press the **MENU/NO "R"** button to display "Iop Read" (C26).

9. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the temperature data at that time in the non-volatile memory as 25 °C reference data.

Note:

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 °C to 28 °C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature of 22 °C to 28 °C.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Procedure:

1. Press the **◀◀ "R"** or **▶▶ "R"** button to display "TEMP ADJUST" (C03).
2. Press the **ENTER/YES "R"** button to select the "TEMP ADJUST" mode.
3. "TEMP = 00 [OK]" and the current temperature data will be displayed.
4. To save the data, press the **ENTER/YES "R"** button.  
When not saving the data, press the **MENU/NO "R"** button.
5. When the **ENTER/YES "R"** button is pressed, "TEMP = 00 SAVE" will be displayed and turned back to "TEMP ADJUST" (C03) display then. When the **MENU/NO "R"** button is pressed, "TEMP ADJUST" (C03) will be displayed immediately.

Specified Value:

The "TEMP = 00" should be within "E0 - EF", "F0 - FF", "00 - 0F", "10 - 1F" and "20 - 2F".

10.LASER POWER ADJUSTMENT

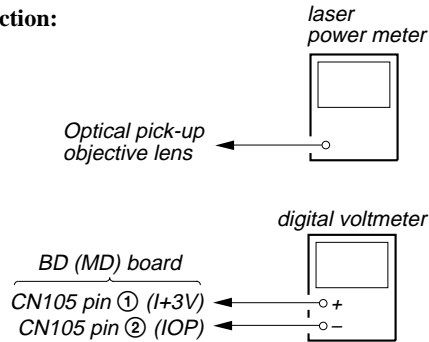
Before starting adjustment;

The laser power adjustment value changes depending upon the types of the optical pick-up (KMS-260B or KMS-260E).

Check the type of the optical pick-up before starting adjustment. (See the illustrations "The method of identifying the optical pick-up on page 35.)

Check the IOP value of the optical pick-up before adjustments. (Refer to 8. Recording and Displaying the Iop Information)

Connection:



Procedure:

1. Insert the laser power meter probe into the disk insertion slot and set it on top of the objective lens of the optical pick-up. (When it cannot be set properly, press the **◀◀ "R"** button or **▶▶ "R"** button to move the optical pick-up)  
Connect the digital voltmeter to CN105 pin ① (I+3V) and CN105pin ② (IOP) on the BD (MD) board.
2. Press the **◀◀ "R"** or **▶▶ "R"** button to display "LDPWR ADJUST" (C04).  
(Laser power : For adjustment)
3. Press the **ENTER/YES "R"** button once to display "LD 0.9 mW \$ 00".
4. Press the **◀◀ "R"** or **▶▶ "R"** button until the laser power meter reading matches with the specified value as described in the following table.

SPECIFIED VALUE	KMS-260B	0.85 to 0.91 mW
	KMS-260E	0.90 to 0.96 mW

Press the **ENTER/YES "R"** button after setting the range knob of the laser power meter, and save the adjustment results. ("LD SAVE \$ 00" will be displayed for a moment)

5. Then "LD 7.0 mW \$ 00" will be displayed.

6. Press the **◀◀ "R"** or **▶▶ "R"** button so that the reading of the laser power meter becomes the specified value, press the **ENTER/YES "R"** button to save it.

SPECIFIED VALUE	KMS-260B	6.7 to 7.1 mW
	KMS-260E	7.2 to 7.3 mW

**Note:** Do not perform the emission with 7.0 mW more than 15 seconds continuously.

7. Then, press the **◀◀ "R"** or **▶▶ "R"** button to display "LDPWR CHECK" (C13).
8. Press the **ENTER/YES "R"** button once to display "LD 0.9mW\$  
00". Check that the reading of the laser power meter matches with the specified value as described in the following table.

SPECIFIED VALUE	KMS-260B	0.85 to 0.91 mW
	KMS-260E	0.90 to 0.96 mW

9. Press the **ENTER/YES "R"** button once more to display "LD 7.0mW\$  
00". Check that the reading the laser power meter and digital voltmeter satisfy the specified value.  
Note down the digital voltmeter reading value.

#### Specified Value:

Laser power meter reading :

SPECIFIED VALUE	KMS-260B	6.8 to 7.2 mW
	KMS-260E	7.0 to 7.5 mW

Digital voltmeter reading : Value on the optical pick-up label  $\pm 10\%$

(Optical pick-up label)

KMS260B  
20101  
H0576

(For details of the method for checking this value, refer to "8. Recording and Displaying the Iop Information")

IOP=57.6 mA in this case

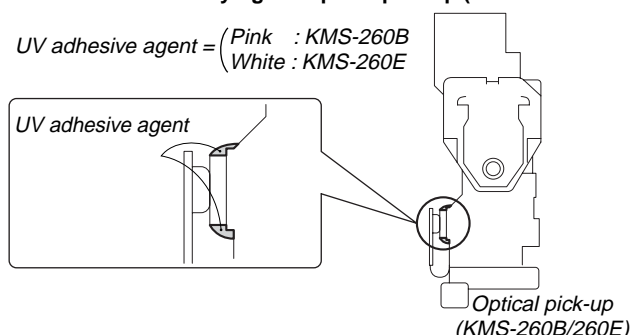
$IOP (mA) = \text{Digital voltmeter reading (mV)} / 1 (\Omega)$

10. Press the **MENU/NO "R"** button to display "LDPWR CHECK" (C13) and stop the laser emission.  
(The **MENU/NO "R"** button is effective at all times to stop the laser emission)
11. Press the **◀◀ "R"** or **▶▶ "R"** button to display "Iop Write" (C05).
12. Press the **ENTER/YES "R"** button. When the display becomes Ref=@ @ @ . @ (@ is an arbitrary number), press the **ENTER/YES "R"** button to display "Measu=@ @ @ . @" (@ is an arbitrary number).
13. The numbers which can be changed will blink. Input the Iop value noted down at step 9.  
To select the number : Press the **◀◀ "R"** or **▶▶ "R"** button.  
To select the digit : Press the **REC MODE** button.
14. When the **ENTER/YES "R"** button is pressed, "Complete!" will be displayed momentarily. The value will be recorded in the non-volatile memory and the display will become "Iop Write" (C05).

**Note:** After step 4, each time the **ENTER/YES "R"** button is pressed, the display will be switched to "LD 0.7mW\$  
00" and "LD 6.2mW\$  
00". Nothing needs to be performed here.

#### The method of identifying the optical pick-up (KMS-260B/260E)

UV adhesive agent = (Pink : KMS-260B  
White : KMS-260E)



#### 11. Iop NV SAVE

Write the reference values in the nonvolatile memory to perform "Iop compare". As this involves rewriting the reference values, do not perform this procedure except when adjusting the laser power during replacement of the optical pick-up and when replacing the IC102. Otherwise the optical pick-up check may deteriorate.

**Note:** Perform this function with the optical pick-up set at room temperature.

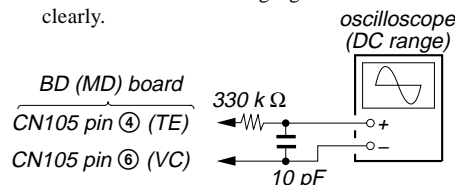
##### Procedure:

- Press the **◀◀ "R"** or **▶▶ "R"** button to display "Iop NV Save" (C06).
- Press the **ENTER/YES "R"** button and display "Iop [stop]".
- After the display changes to "Iop =xxsave?", press the **ENTER/YES "R"** button.
- After "Complete!" is displayed momentarily, the display changes to "Iop 7.0 mW".
- After the display changes to "Iop=yysave?", press the **ENTER/YES "R"** button.
- When "Complete!" is displayed, it means that Iop NV saving has been completed.

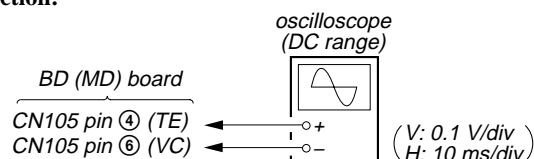
#### 12. TRAVERSE ADJUSTMENT

**Note 1:** Data will be erased during MO reading if a recorded disc is used in this adjustment.

**Note 2:** If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



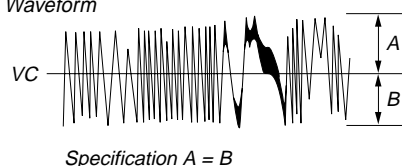
Connection:



##### Procedure:

- Connect an oscilloscope to CN105 pin ④ (TE) and CN105 pin ⑥ (VC) on the BD (MD) board.
- Load a disc (any available on the market). (Refer to Note 1)
- Press the **▶▶ "R"** button to move the optical pick-up outside the pit.
- Press the **◀◀ "R"** or **▶▶ "R"** button to display "EF MO ADJUST" (C07).
- Press the **ENTER/YES "R"** button to display "EFB = 00 MO-R". (Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
- Press the **◀◀ "R"** or **▶▶ "R"** button so that the waveform of the oscilloscope becomes the specified value.  
(When the **◀◀ "R"** or **▶▶ "R"** button is pressed, the 00 of "EFB = 00" changes and the waveform changes) In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.  
(Read power traverse adjustment)

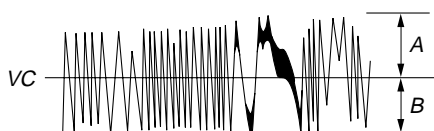
Traverse Waveform



- Press the **ENTER/YES "R"** button and save the result of adjustment to the non-volatile memory ("EFB = 00 SAVE" will be displayed for a moment. Then "EFB = 00 MO-W" will be displayed).

8. Press the **◀◀ "R"** or **▶▶ "R"** button so that the waveform of the oscilloscope becomes the specified value.  
(When the **◀◀ "R"** or **▶▶ "R"** button is pressed, the **00** of "EFB = 00" changes and the waveform changes) In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.  
(Write power traverse adjustment)

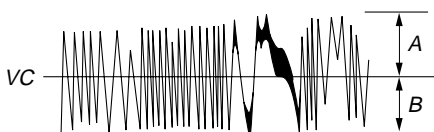
Traverse Waveform



Specification  $A = B$

9. Press the **ENTER/YES "R"** button, and save the adjustment results in the non-volatile memory. ("EFB = 00 SAVE" will be displayed for a moment)
10. "EFB = 00 MO-P" will be displayed.  
The optical pick-up moves to the pit area automatically and servo is imposed.
11. Press the **◀◀ "R"** or **▶▶ "R"** button until the waveform of the oscilloscope moves closer to the specified value.  
In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

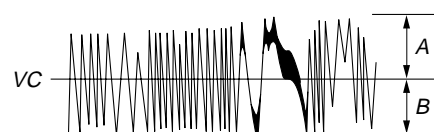
Traverse Waveform



Specification  $A = B$

12. Press the **ENTER/YES "R"** button, and save the adjustment results in the non-volatile memory. ("EFB = 00 SAVE" will be displayed for a moment)  
Next "EF MO ADJUST" (C07) is displayed. The disc stops rotating automatically.
13. Press the **▲ (MD)** button and take out the disc.
14. Load the check disc (TDYS-1).
15. Press the **◀◀ "R"** or **▶▶ "R"** button to display "EF CD ADJUST" (C08).
16. Press the **ENTER/YES "R"** button to display "EFB = 00 CD".  
Servo is imposed automatically.
17. Press the **◀◀ "R"** or **▶▶ "R"** button so that the waveform of the oscilloscope moves closer to the specified value.  
In this adjustment, waveform varies at intervals of approx. 2%. Adjust the waveform so that the specified value is satisfied as much as possible.

Traverse Waveform



Specification  $A = B$

18. Press the **ENTER/YES "R"** button, display "EFB = 00 SAVE" for a moment and save the adjustment results in the non-volatile memory.  
Next "EF CD ADJUST" (C08) will be displayed.
19. Press the **▲ (MD)** button and take out the check disc.

**Adjustment Location:** BD board (see page 38)

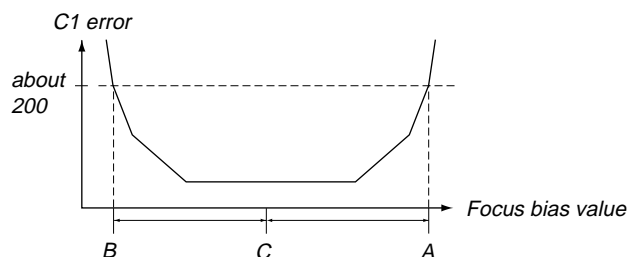
## 13. FOCUS BIAS ADJUSTMENT

### Procedure:

1. Load the continuously-recorded disc. (Refer to "5. USING THE CONTINUOUSLY RECORDED DISC" (See page 31))
2. Press the **◀◀ "R"** or **▶▶ "R"** button to display "CPLAY1 MODE" (C34).
3. Press the **ENTER/YES "R"** button to display "CPLAY 1MID".
4. Press the **MENU/NO "R"** button when "C = 0000 AD = 00" is displayed.
5. Press the **◀◀ "R"** or **▶▶ "R"** button to display "FBIAS ADJUST" (C09).
6. Press the **ENTER/YES "R"** button to display "0000/00 a = 00".  
The first four digits indicate the C1 error rate, the two digits after "/" indicate ADER, and the 2 digits after "a =" indicate the focus bias value.
7. Press the **▶▶ "R"** button and find the focus bias value at which the C1 error rate becomes about 200 (refer to Note 2).
8. Press the **ENTER/YES "R"** button to display "0000/00 b = 00".
9. Press the **◀◀ "R"** button and find the focus bias value at which the C1 error rate becomes about 200.
10. Press the **ENTER/YES "R"** button to display "0000/00 c = 00".
11. Check that the C1 error rate is below 20 and ADER is 00. Then press the **ENTER/YES "R"** button.
12. If the "(00)" in "00 - 00 - 00 (00)" is above 20, press the **ENTER/YES "R"** button.  
If below 20, press the **MENU/NO "R"** button and repeat the adjustment from step 2.
13. Press the **▲ (MD)** button and take out the disc.

**Note 1:** The relation between the C1 error and focus bias is as shown in the following figure. Find points A and B in the following figure using the above adjustment. The focal point position C is automatically calculated from points A and B.

**Note 2:** As the C1 error rate changes, perform the adjustment using the average value.





## 14. ERROR RATE CHECK

### 14-1. CD Error Rate Check

#### Procedure:

1. Load the check disc (TDYS-1).
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button and display "CPLAY1 MODE" (C34).
3. Press the **[ENTER/YES "R"]** button twice and display "CPLAY1 MID".
4. The display changes to "C = 0000 AD = 00".
5. Check that the C1 error rate is below 50.
6. Press the **[MENU/NO "R"]** button to stop playback, then press the **[▲] (MD)** button and take out the check disc.

### 14-2. MO Error Rate Check

#### Procedure:

1. Load the continuously-recorded disc. (Refer to "5. USING THE CONTINUOUSLY RECORDED DISC" (See page 31))
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CPLAY1 MODE" (C34).
3. Press the **[ENTER/YES "R"]** button to display "CPLAY1 MID".
4. The display changes to "C1 = 0000 AD = 00".
5. If the C1 error rate is below 50, check that ADER is 00.
6. Press the **[MENU/NO "R"]** button to stop playback, then press the **[▲] (MD)** button and take out the disc.

## 15. FOCUS BIAS CHECK

Change the focus bias and check the focus tolerance amount.

#### Procedure:

1. Load the continuously-recorded disc. (Refer to "5. USING THE CONTINUOUSLY RECORDED DISC" (See page 31))
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "CPLAY1 MODE" (C34).
3. Press the **[ENTER/YES "R"]** button twice to display "CPLAY1 MID".
4. Press the **[MENU/NO "R"]** button when "C1 = 0000 AD = 00" is displayed.
5. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "FBIAS CHECK" (C16).
6. Press the **[ENTER/YES "R"]** button to display "0000/00 c = 00". The first four digits indicate the C1 error rate, the two digits after "/" indicate ADER, and the 2 digits after "c =" indicate the focus bias value.  
Check that the C1 error is below 50 and ADER is below 2.
7. Press the **[ENTER/YES "R"]** button and display "0000/00 b = 00".  
Check that the C1 error is below 100 and ADER is below 2.
8. Press the **[ENTER/YES "R"]** button and display "0000/00 a = 00".  
Check that the C1 error is below 100 and ADER is below 2.
9. Press the **[MENU/NO "R"]** button, then press the **[▲] (MD)** button and take out the disc.

**Note:** If the C1 error and ADER are above other than the specified value at points a (step 8. in the above) or b (step 7. in the above), the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

## 16. AUTO GAIN CONTROL OUTPUT LEVEL ADJUSTMENT

Be sure to perform this adjustment when the optical pick-up is replaced.

If the adjustment results becomes "Adjust NG!", the optical pick-up may be faulty or the servo system circuits may be abnormal.

### 16-1. CD Auto Gain Control Output Level Adjustment

#### Procedure:

1. Load the check disc (TDYS-1).
2. Press the **[◀◀◀ "R"]** or **[▶▶▶ "R"]** button to display "AG Set (CD)" (C11).
3. When the **[ENTER/YES "R"]** button is pressed, the adjustment will be performed automatically.  
"Complete!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (CD)" (C11).
4. Press the **[▲] (MD)** button and take out the check disc.

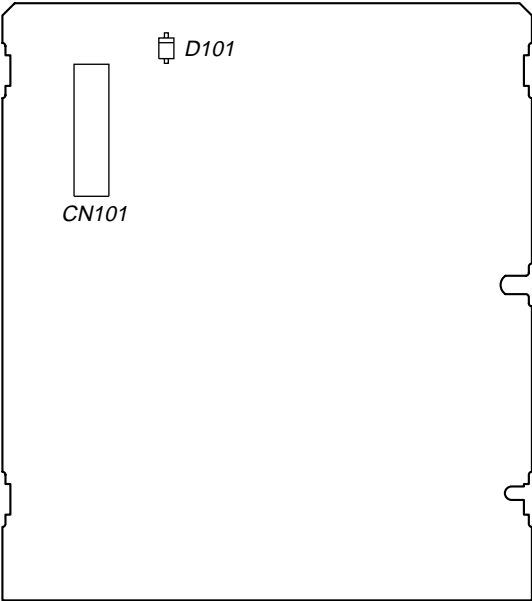
### 16-2. MO Auto Gain Control Output Level Adjustment

#### Procedure:

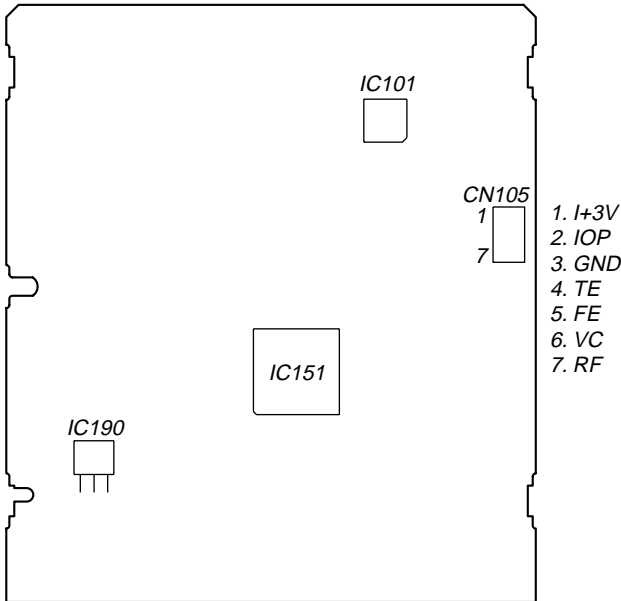
1. Load the test disc (MDW-74/GA-1).
2. Press the **[◀◀ "R"]** or **[▶▶ "R"]** button to display "AG Set (MO)" (C10).
3. When the **[ENTER/YES "R"]** button is pressed, the adjustment will be performed automatically.  
"Complete!" will then be displayed momentarily when the value is recorded in the non-volatile memory, after which the display changes to "AG Set (MO)" (C10).
4. Press the **[▲] (MD)** button and take out the test disc.

Adjustment and checking Location:

– BD (MD) BOARD (Component Side) –



– BD (MD) BOARD (Conductor Side) –

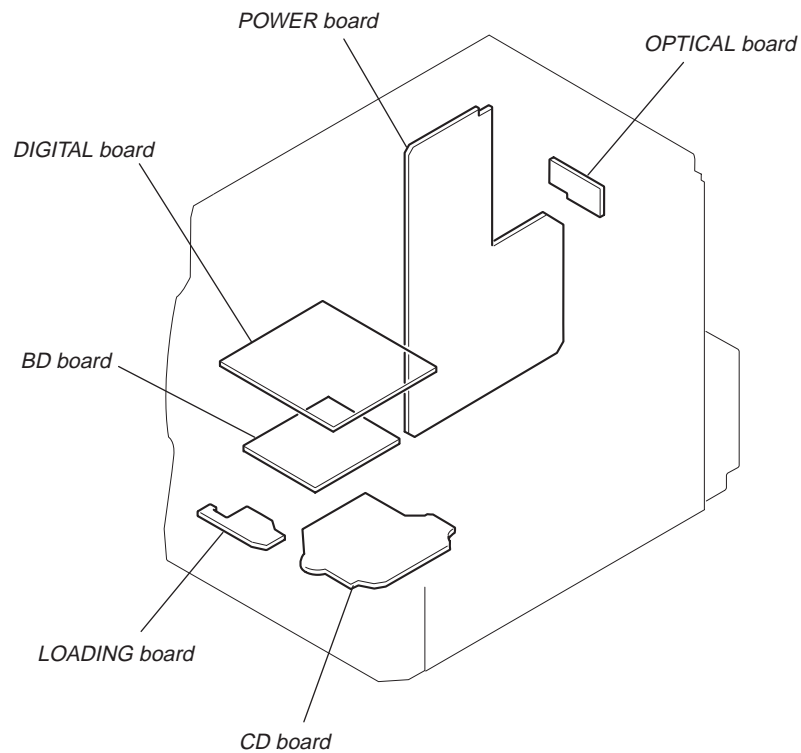
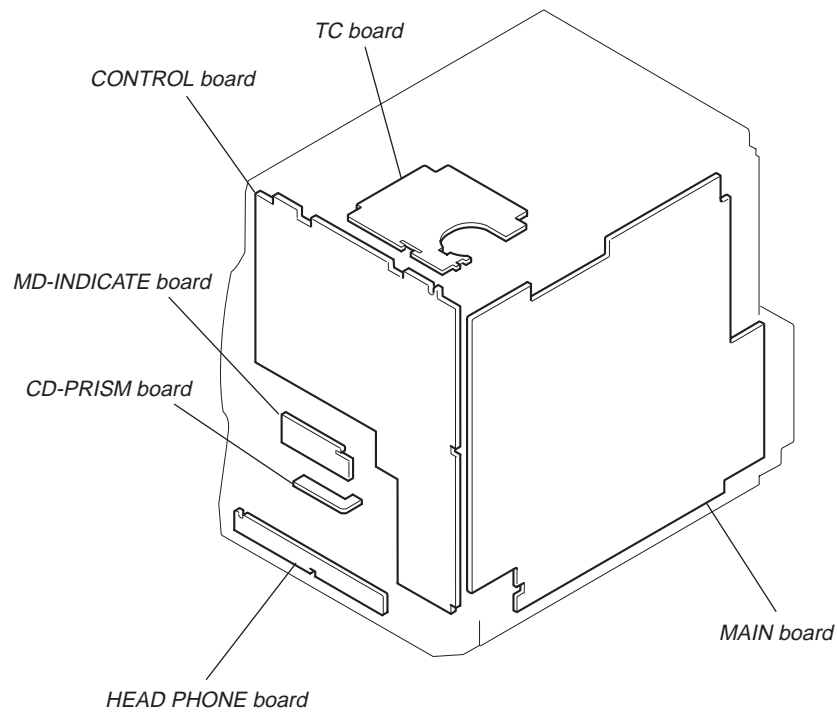


**Note:** It is useful to use the jig for checking the waveform. (Refer to Servicing Notes on page 8)

MEMO

## SECTION 7 DIAGRAMS

### 7-1. CIRCUIT BOARDS LOCATION



THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.  
(In addition to this, the necessary note is printed in each block.)

For schematic diagrams.

- Note:**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\mu\text{F}$  50 WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in  $\Omega$  and  $1/4\text{W}$  or less unless otherwise specified.
  - $\triangle$  : internal component.
  - $\square$  : nonflammable resistor.
  - $\square$  : fusible resistor.
  - $\square$  : panel designation.

**Note:**  
The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

以阴影和  $\triangle$  标志来识别的零部件，在安全方面具有关键性，因此只能以规定号码的零部件来更换。

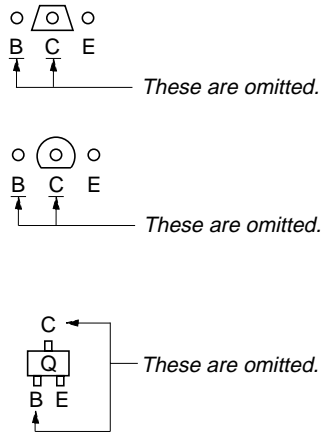
- $\text{---}$  : B+ Line.
- $\text{---}$  : B- Line.
- $\square$  : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - $\Rightarrow$  : FM
  - $\Rightarrow$  : VIDEO/MD (AUDIO)
  - $\Rightarrow$  : PB (TAPE)
  - $\Rightarrow$  : REC (TAPE)
  - $\Rightarrow$  : CD (Analog)
  - $\Rightarrow$  : CD (DIGITAL OUT)
  - $\Rightarrow$  : MD (PB)
  - $\Rightarrow$  : MD (REC)
- Abbreviation
  - AUS : Australian model
  - CH : Chinese model
  - E51 : Chilean and Peruvian model
  - HK : Hong Kong model

For printed wiring boards.

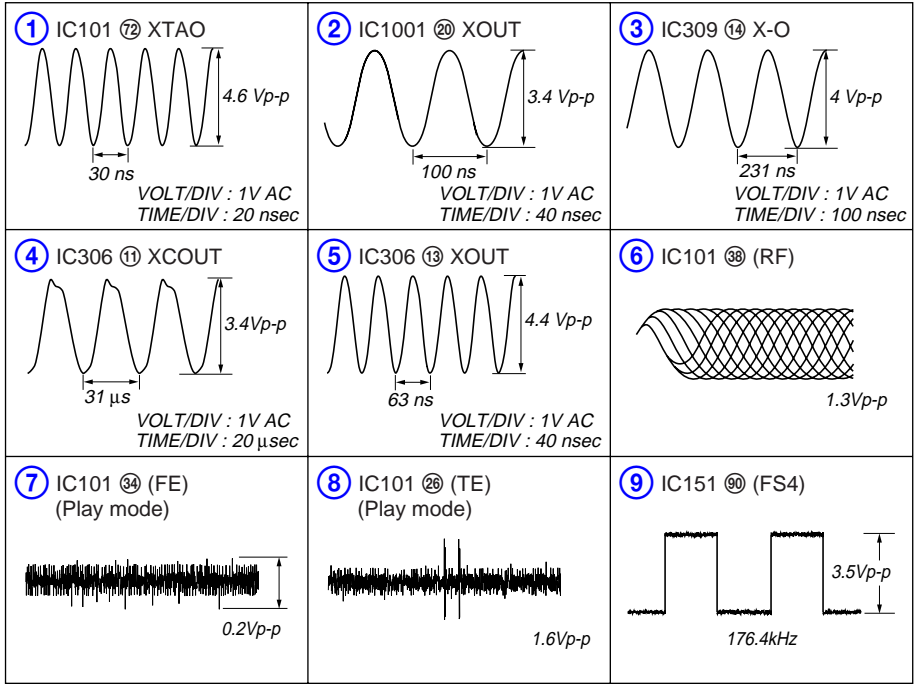
- Note:**
- $\text{---}$  : parts extracted from the component side.
  - $\text{---}$  : parts extracted from the conductor side.
  - $\circ$  : Through hole.
  - $\square$  : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)

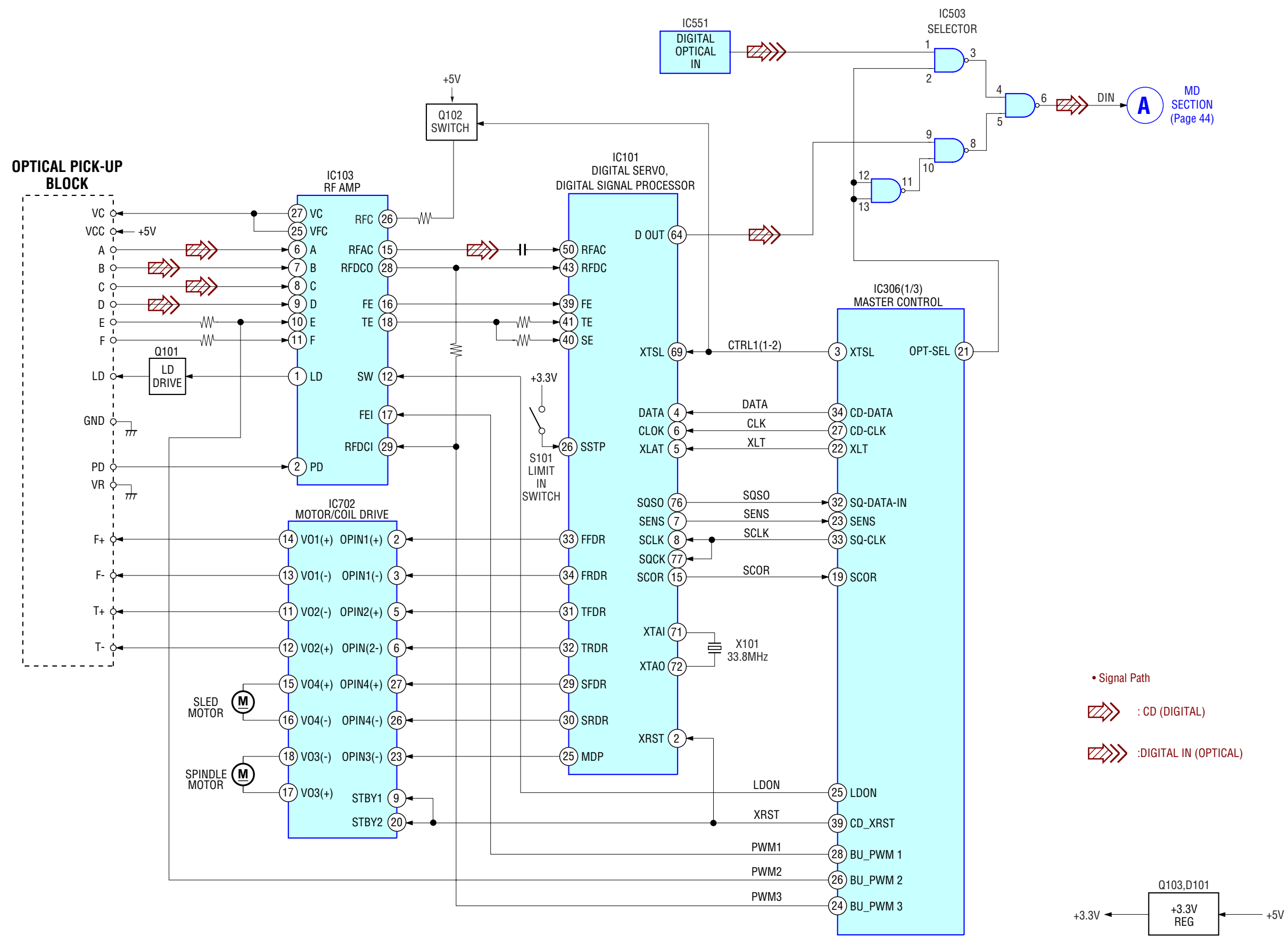
**Caution:**  
Pattern face side: Parts on the pattern face side seen from the (Side B) pattern face are indicated.  
Parts face side: Parts on the parts face side seen from the (Side A) parts face are indicated.

• Indication of transistor

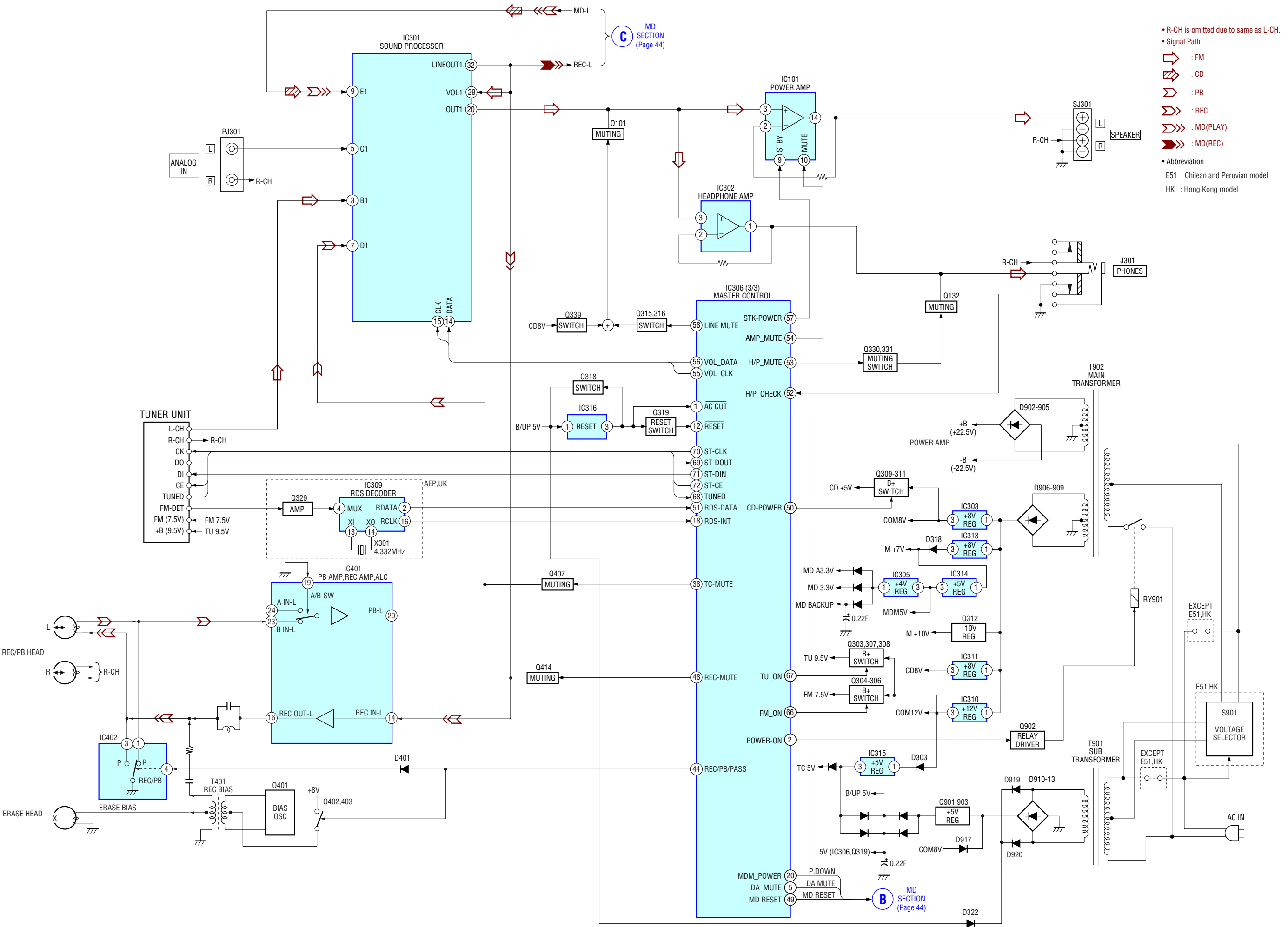


• Waveforms





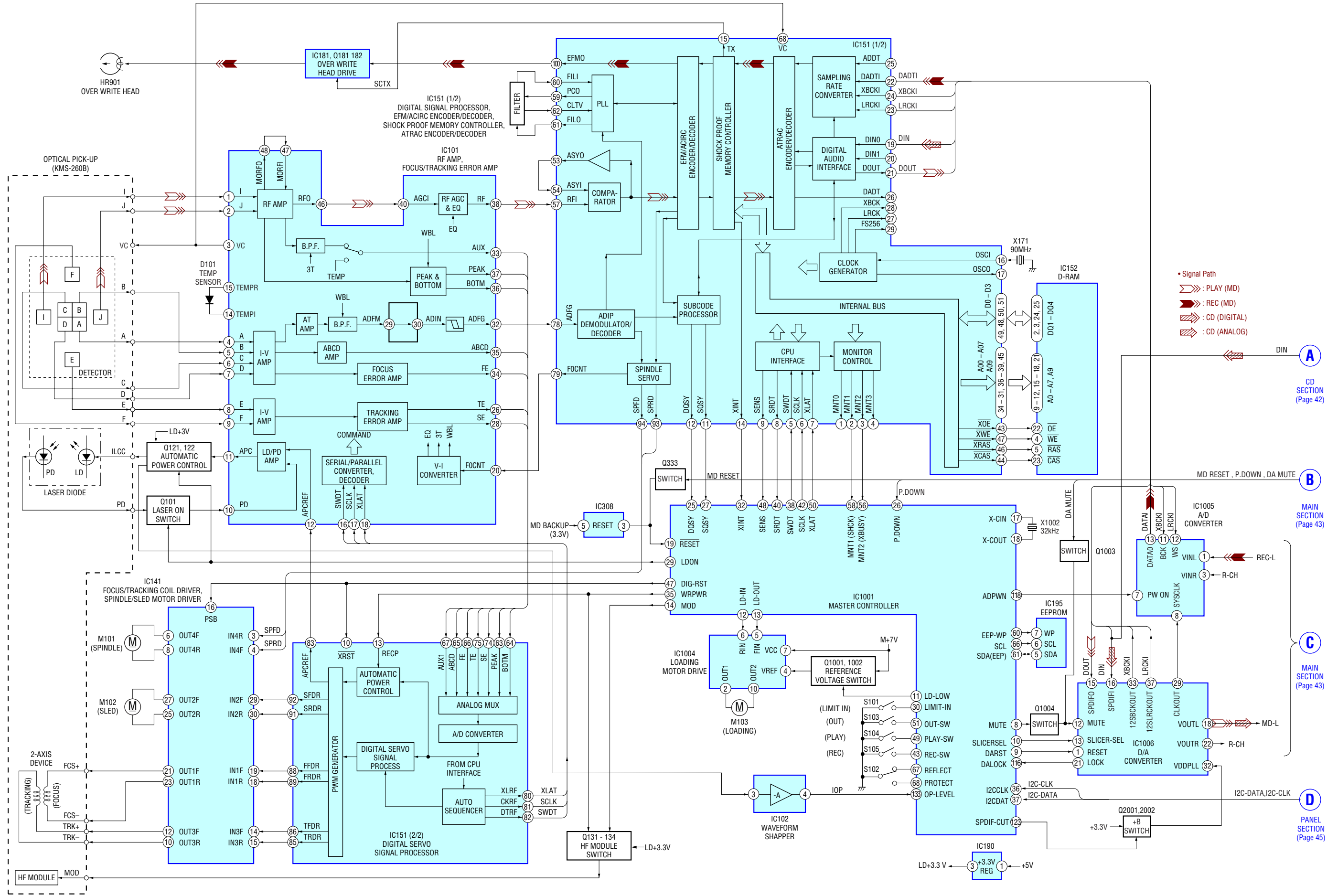
BLOCK DIAGRAM – MAIN SECTION –



- R-CH is omitted due to same as L-CH.
- Signal Path
- ➡ : FM
- ➡ : CD
- ➡ : PB
- ➡ : REC
- ➡ : MD(PLAY)
- ➡ : MD(REC)
- Abbreviation
- E51 : Chilean and Peruvian model
- HK : Hong Kong model

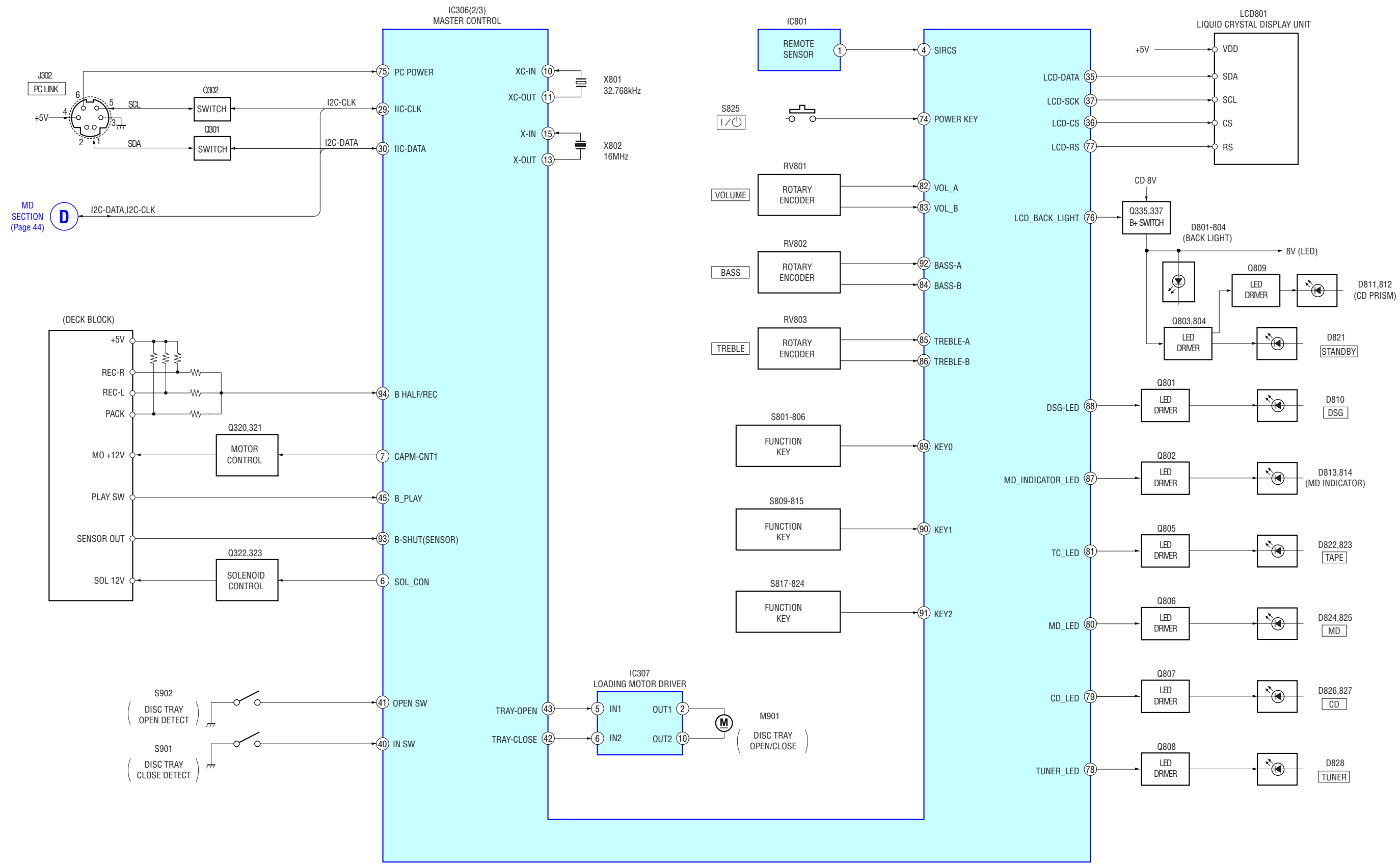
HCD-CP500MD

BLOCK DIAGRAM – MD SECTION –



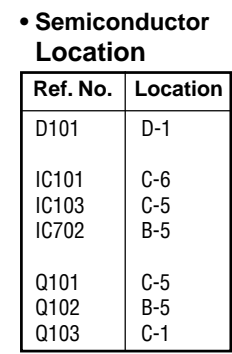


BLOCK DIAGRAM – PANEL SECTION –

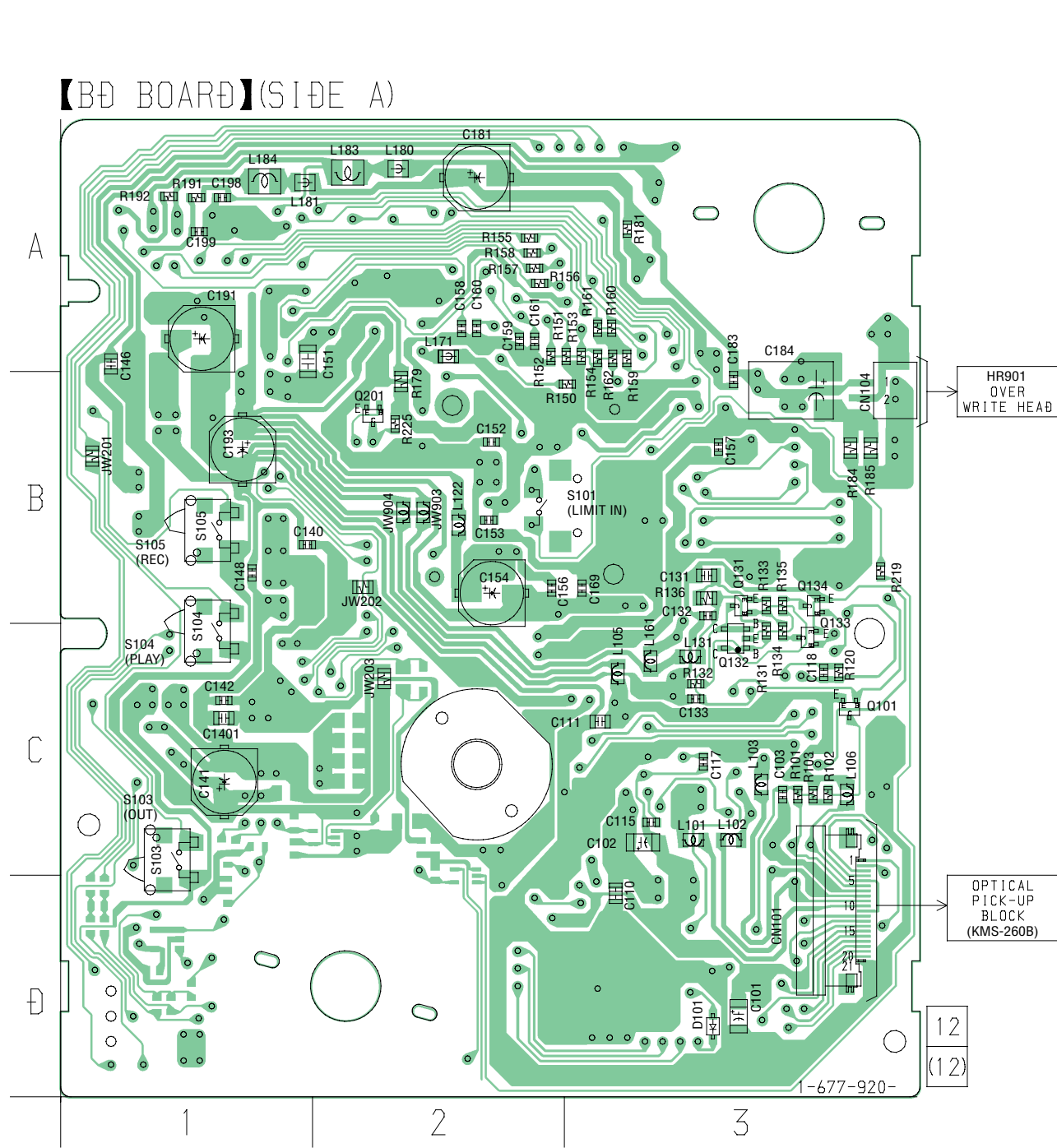


MD  
SECTION  
(Page 44)

D

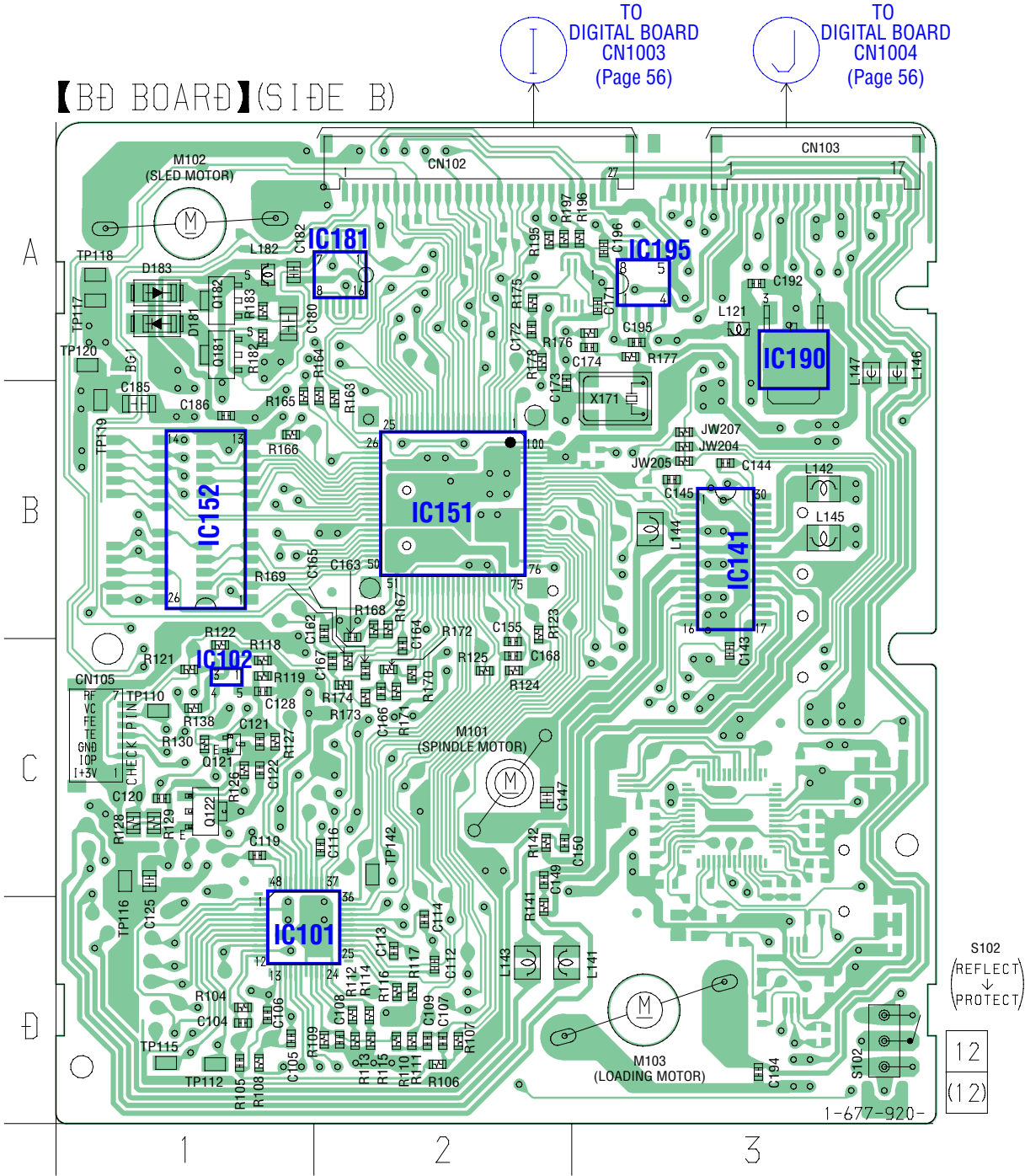






• Semiconductor  
Location  
SIDE A

Ref. No.	Location
D101	D-3
Q101	C-3
Q131	B-3
Q132	C-3
Q133	B-3
Q134	B-3

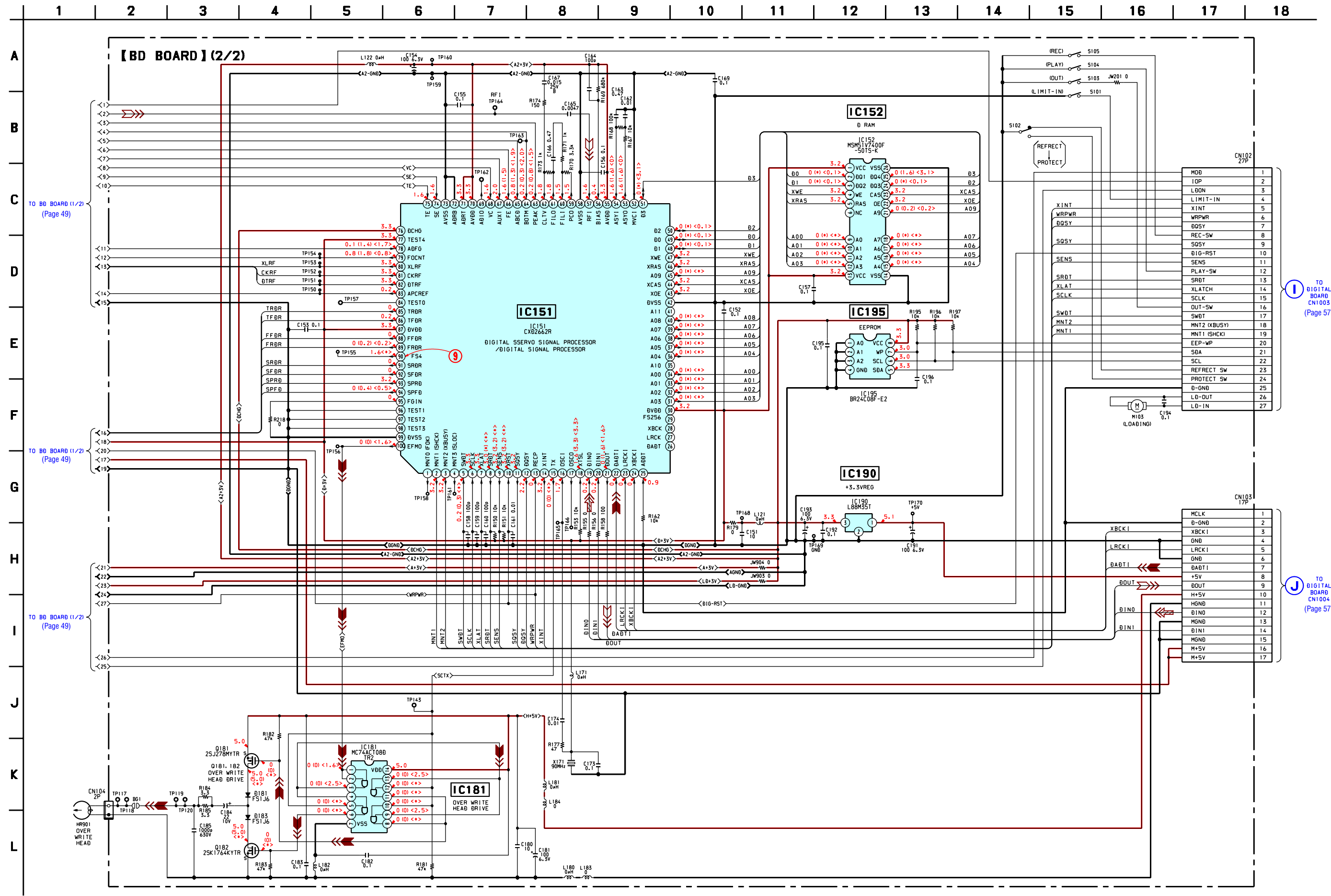


• Semiconductor  
Location  
SIDE B

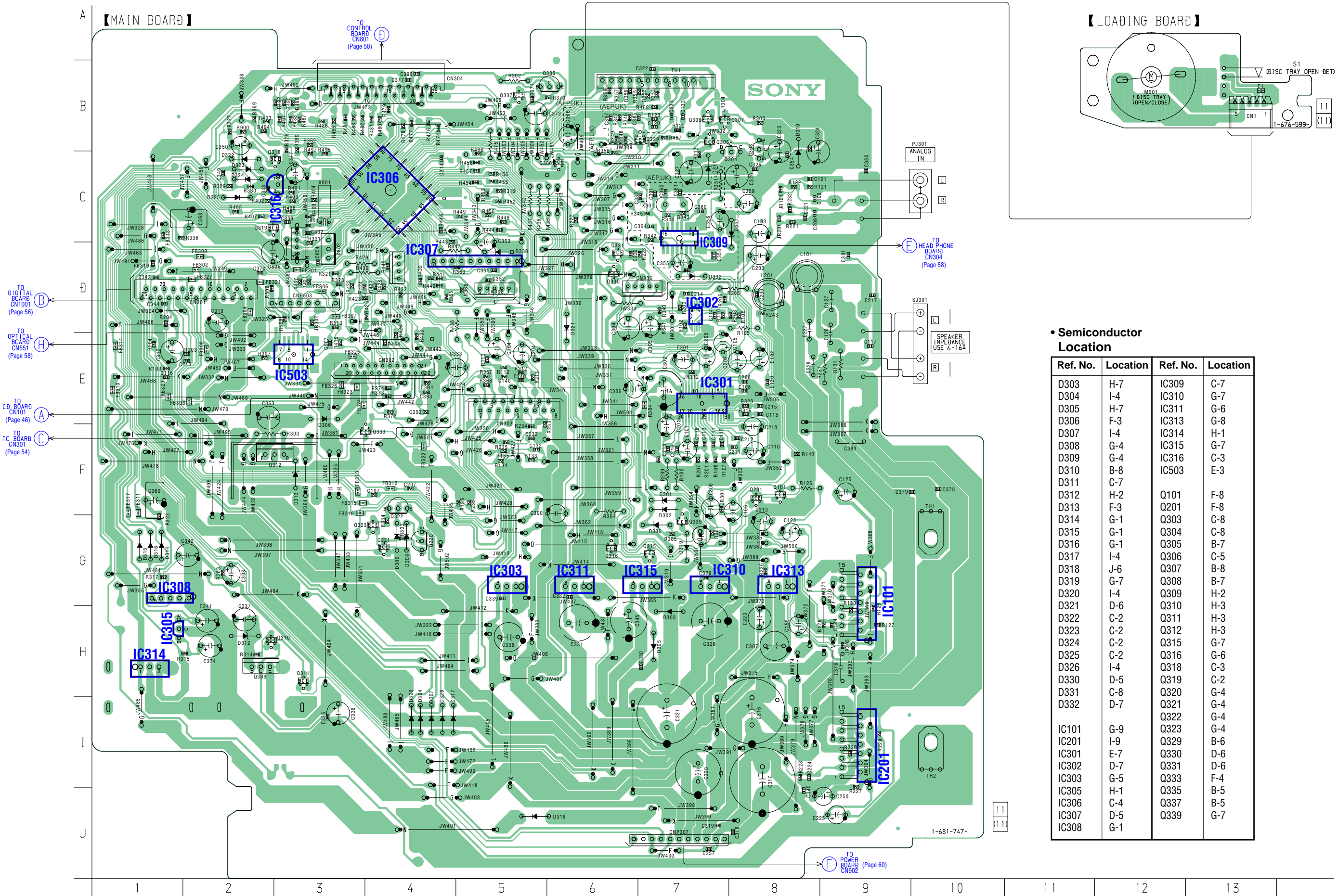
Ref. No.	Location	Ref. No.	Location
D181	A-1	IC181	A-2
D183	A-1	IC190	A-3
		IC195	A-3
IC101	D-1	Q121	C-1
IC102	C-1	Q122	C-1
IC141	B-3	Q181	A-1
IC151	B-2	Q182	A-1
IC152	B-1		







7-8. PRINTED WIRING BOARDS – AUDIO SECTION – • See page 30 for Circuit Boards Location.

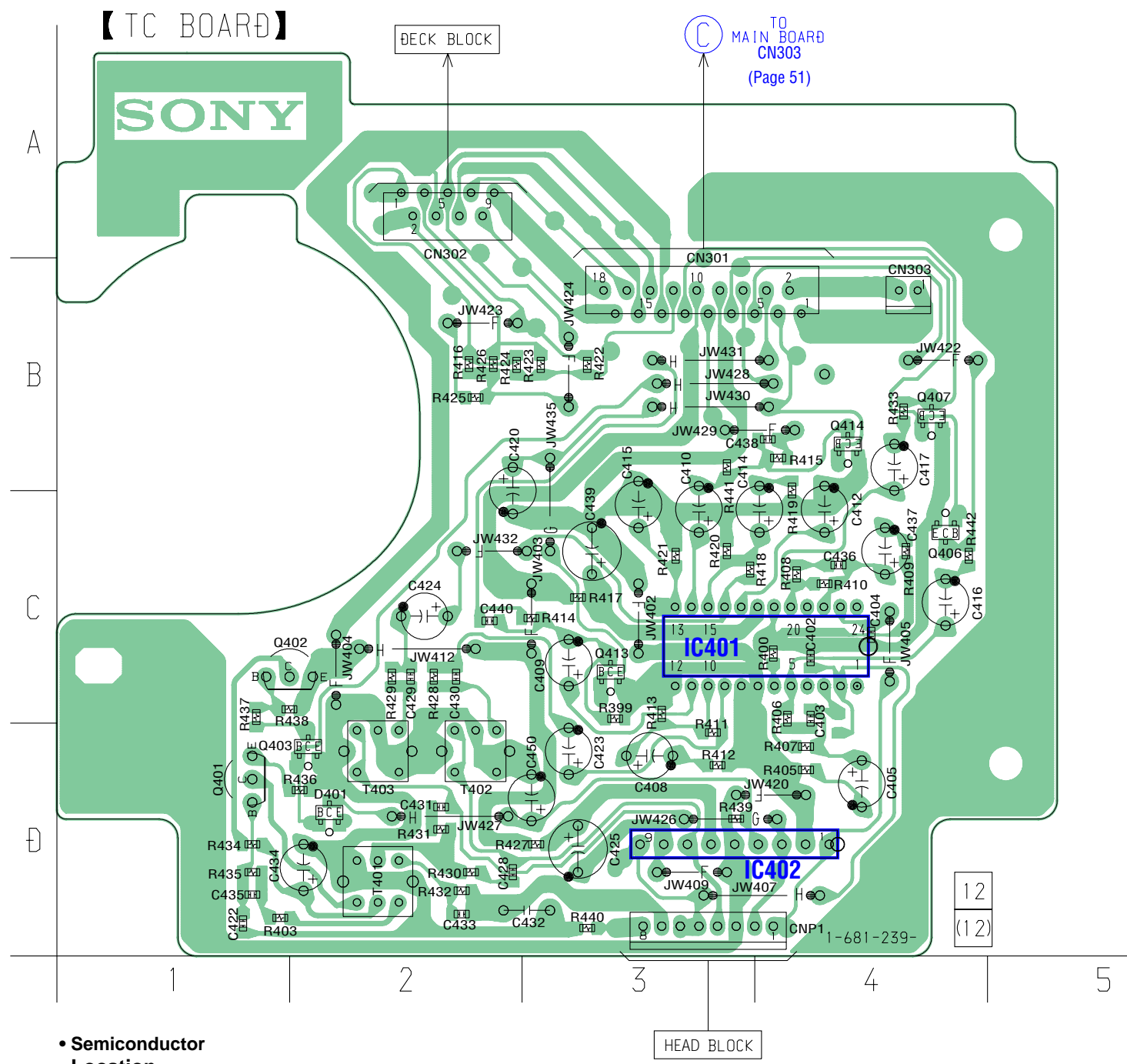








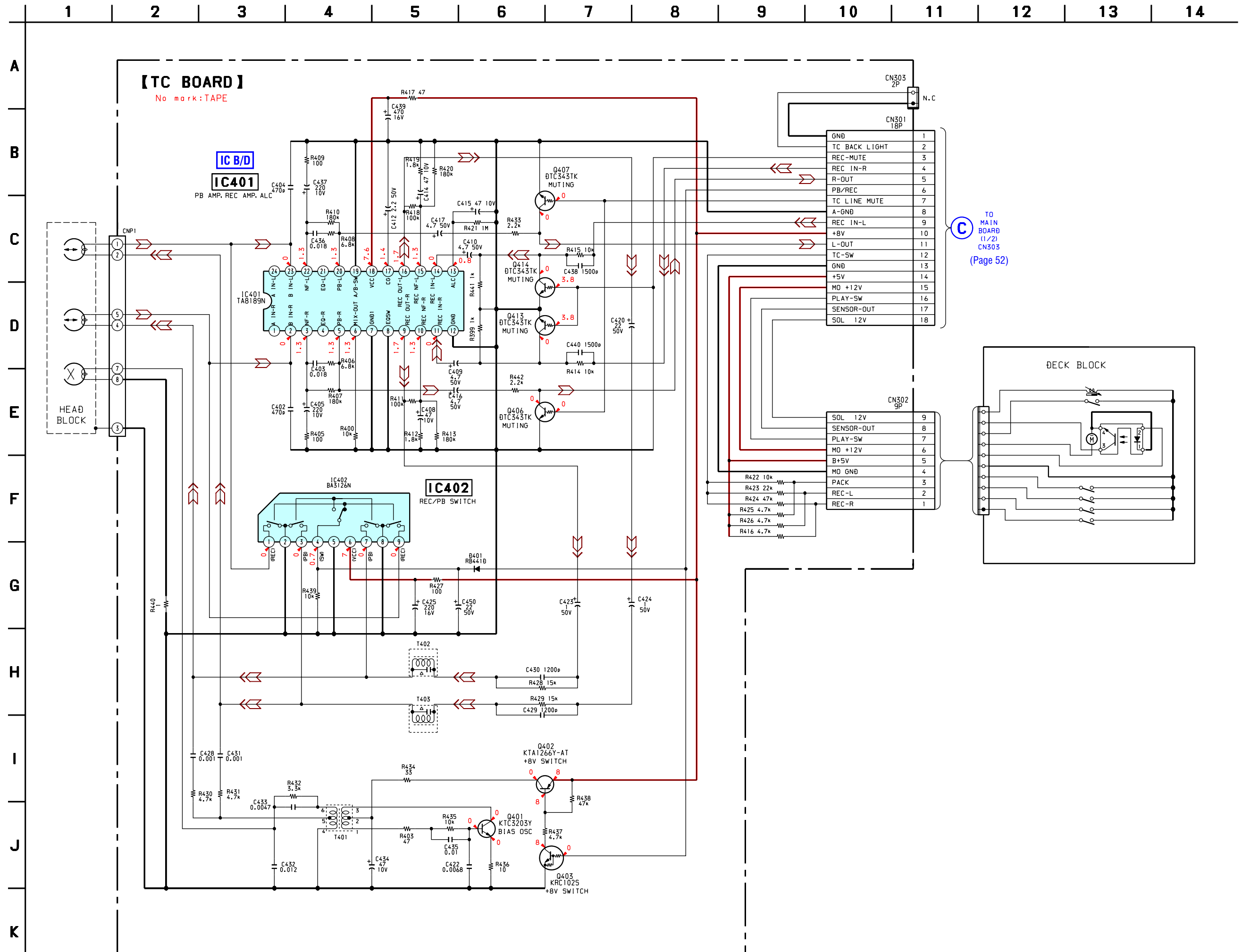


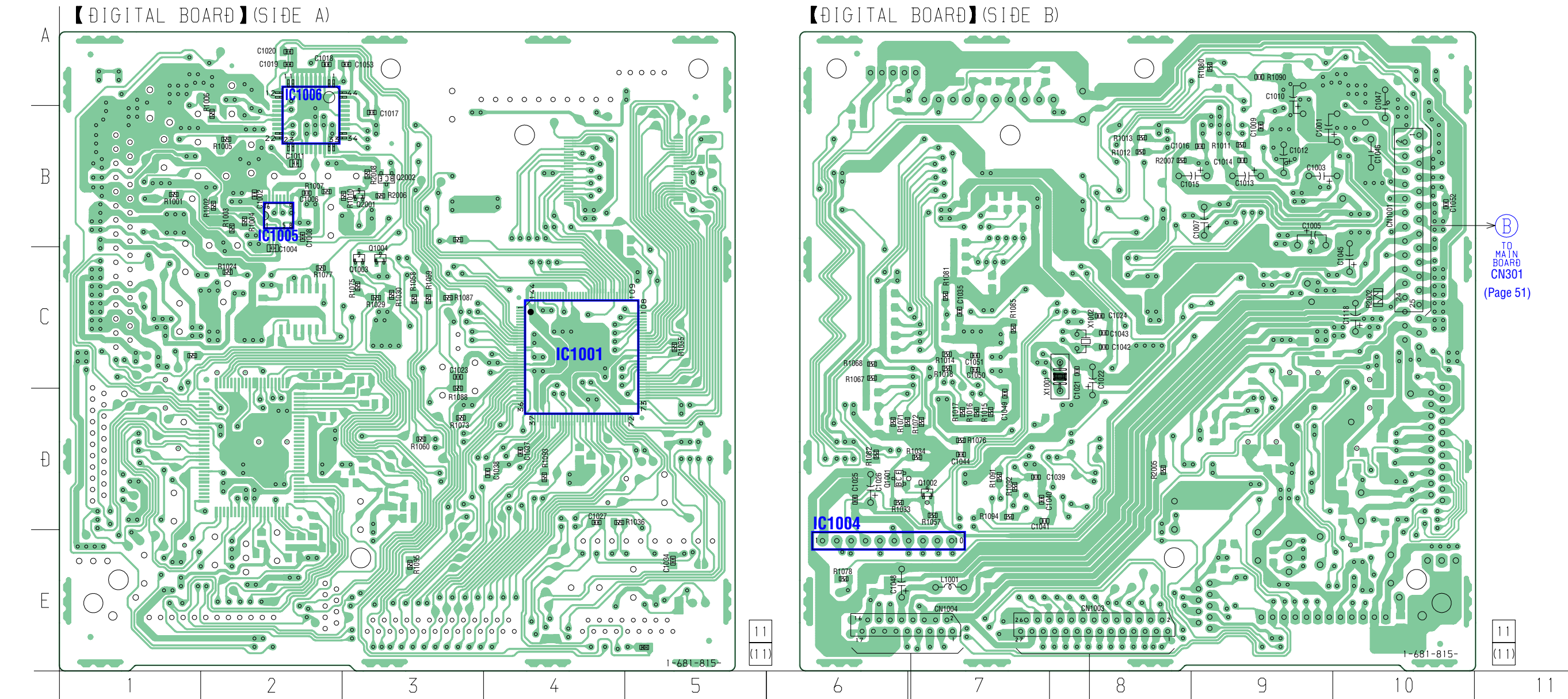


• Semiconductor Location

Ref. No.	Location
D401	D-2
IC401	C-4
IC402	D-3
Q401	D-1
Q402	C-2
Q403	D-1
Q406	C-4
Q407	B-4
Q413	C-3
Q414	B-4

### 7-12. SCHEMATIC DIAGRAM – TC BOARD –



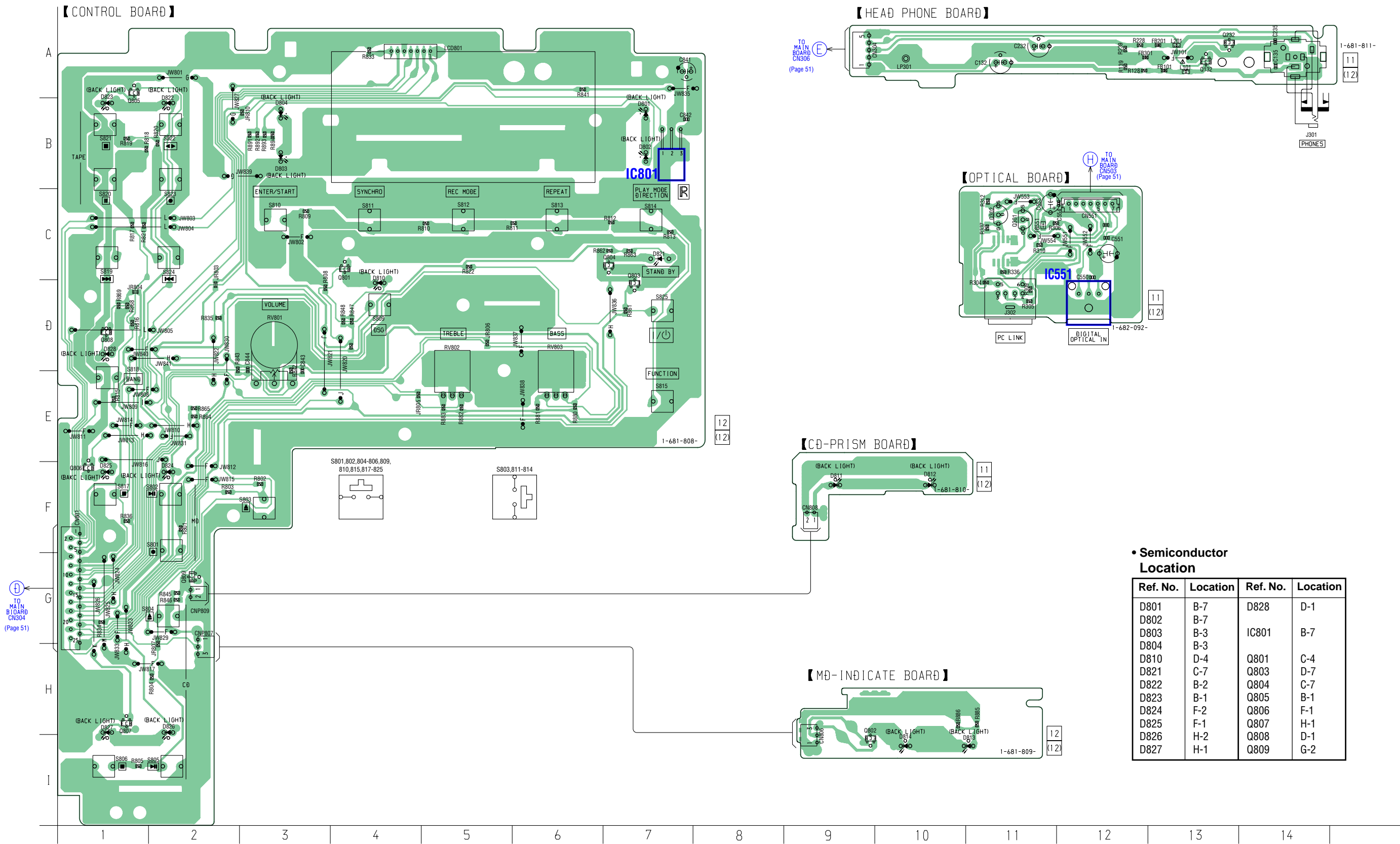


• Semiconductor Location

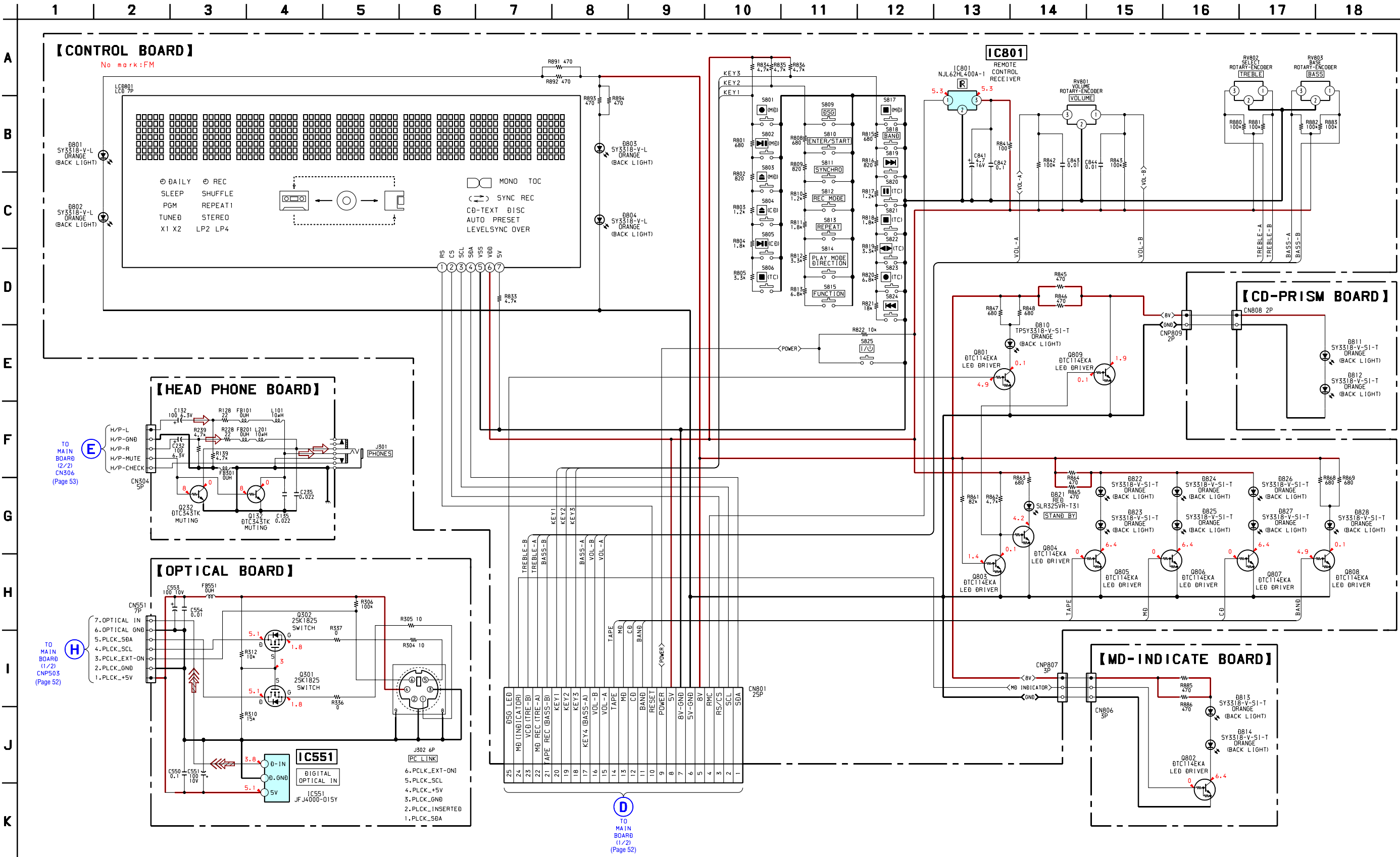
Ref. No.	Location
IC1001	C-4
IC1004	D-5
IC1005	B-2
IC1006	A-2
Q1001	D-6
Q1002	D-7
Q1003	C-3
Q1004	B-3
Q2001	B-3
Q2002	B-3







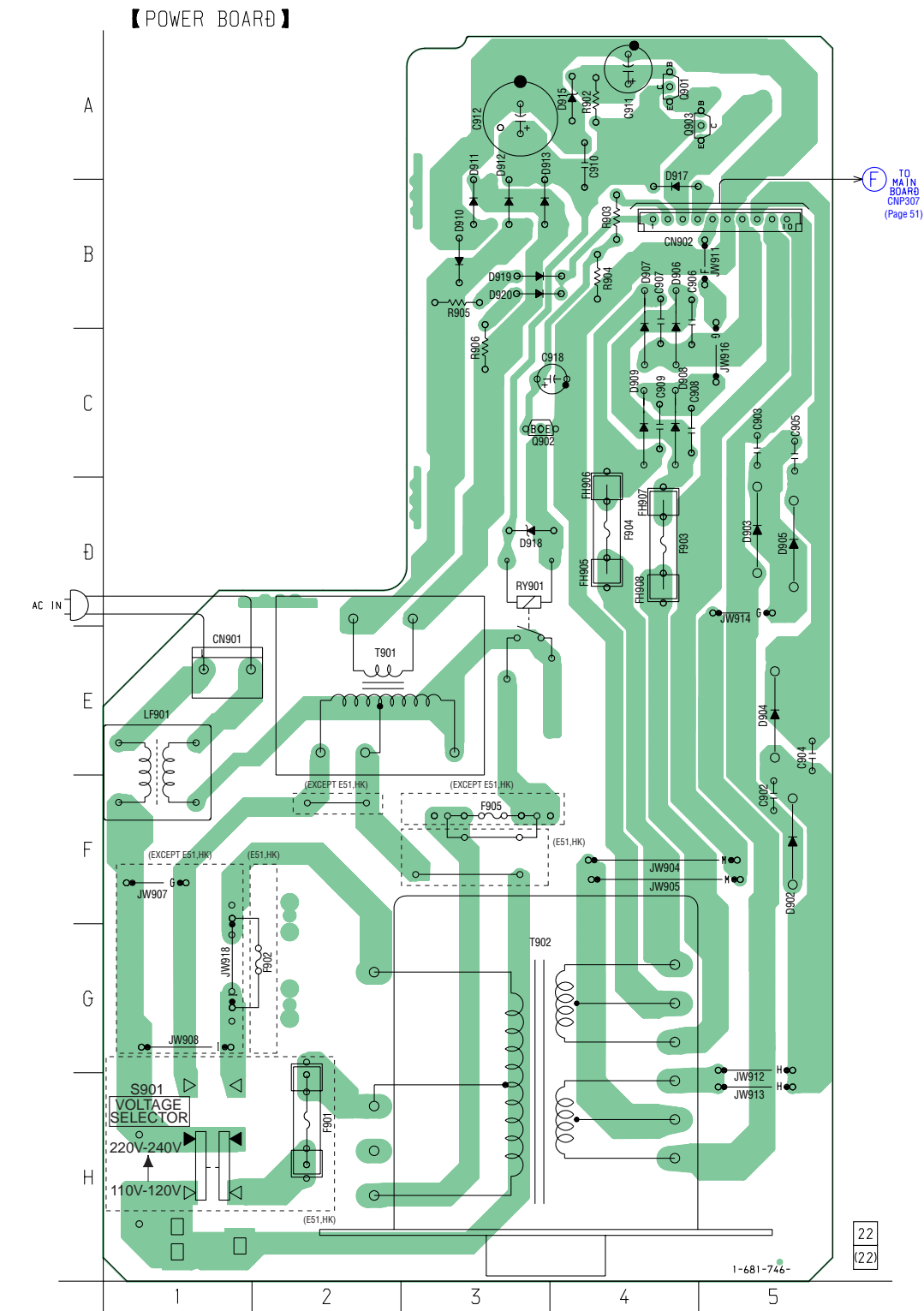
7-16. SCHEMATIC DIAGRAM – CONTROL SECTION –



HCD-CP500MD

7-17. PRINTED WIRING BOARD – POWER BOARD –

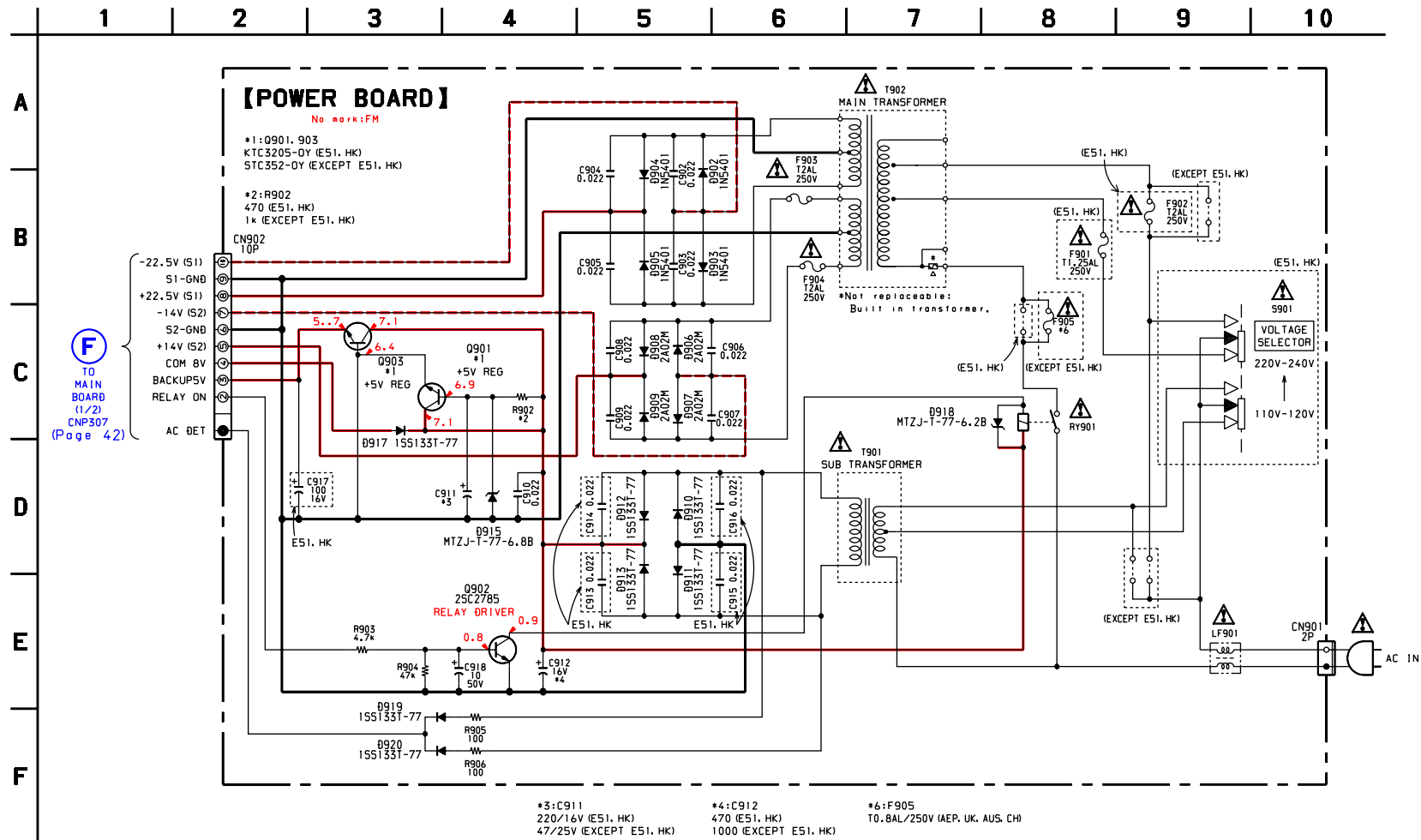
• See page 30 for Circuit Boards Location.



• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D902	F-5	D913	A-3
D903	D-5	D915	A-4
D904	E-5	D917	A-4
D905	D-5	D918	D-3
D906	B-4	D919	C-3
D907	B-4	D920	C-3
D908	C-4		
D909	C-4	Q901	A-4
D910	B-3	Q902	C-3
D911	A-3	Q903	A-4
D912	A-3		

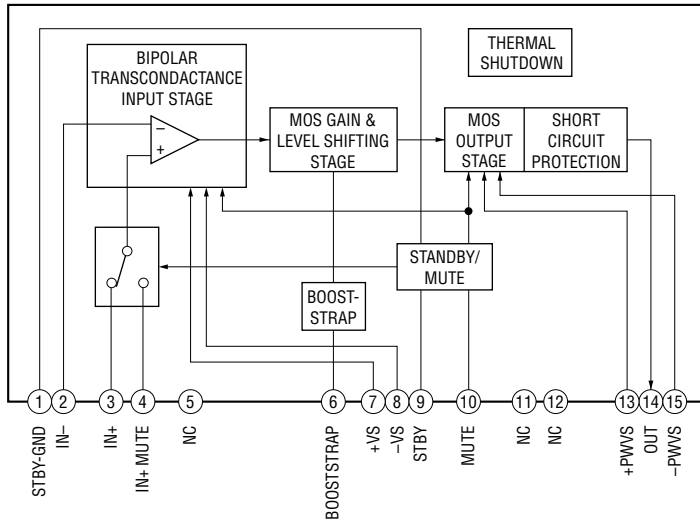
7-18. SCHEMATIC DIAGRAM – POWER BOARD –



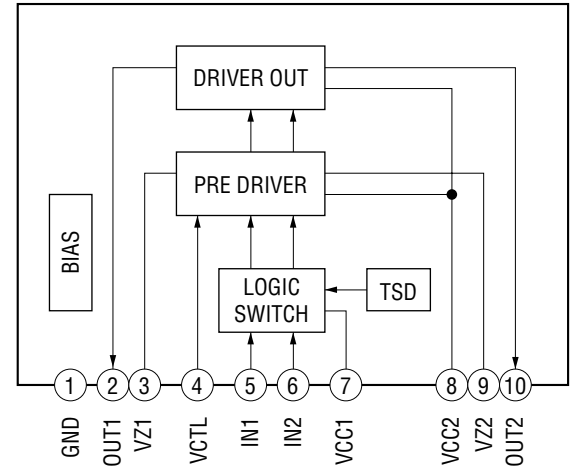


## 7-19. IC BLOCK DIAGRAMS

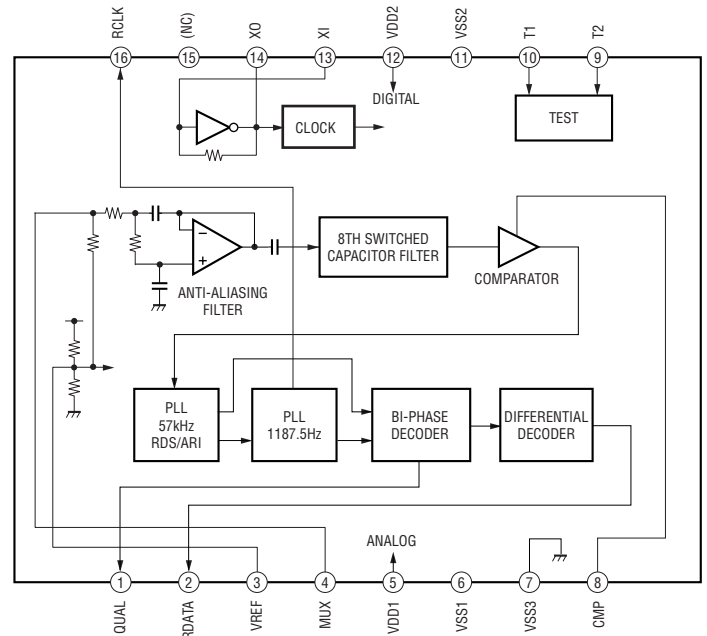
IC101, 201 TDA7296



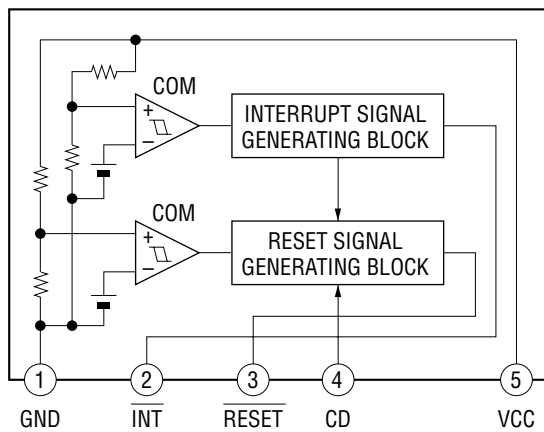
IC307 KA3082



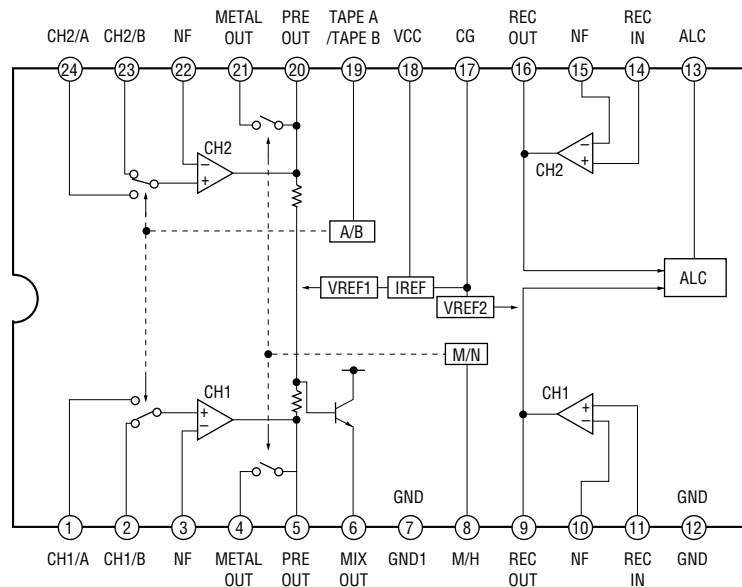
IC309 BU1924F



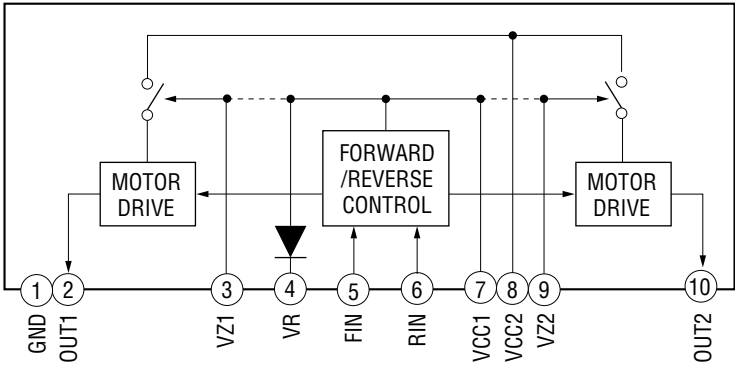
IC308 M62016L



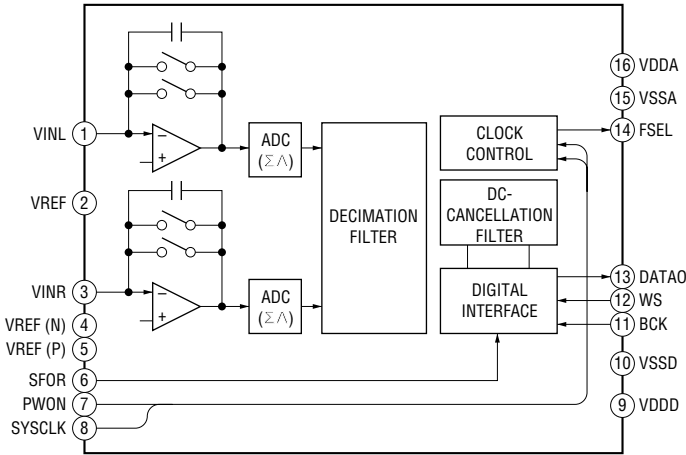
IC401 TA8189N



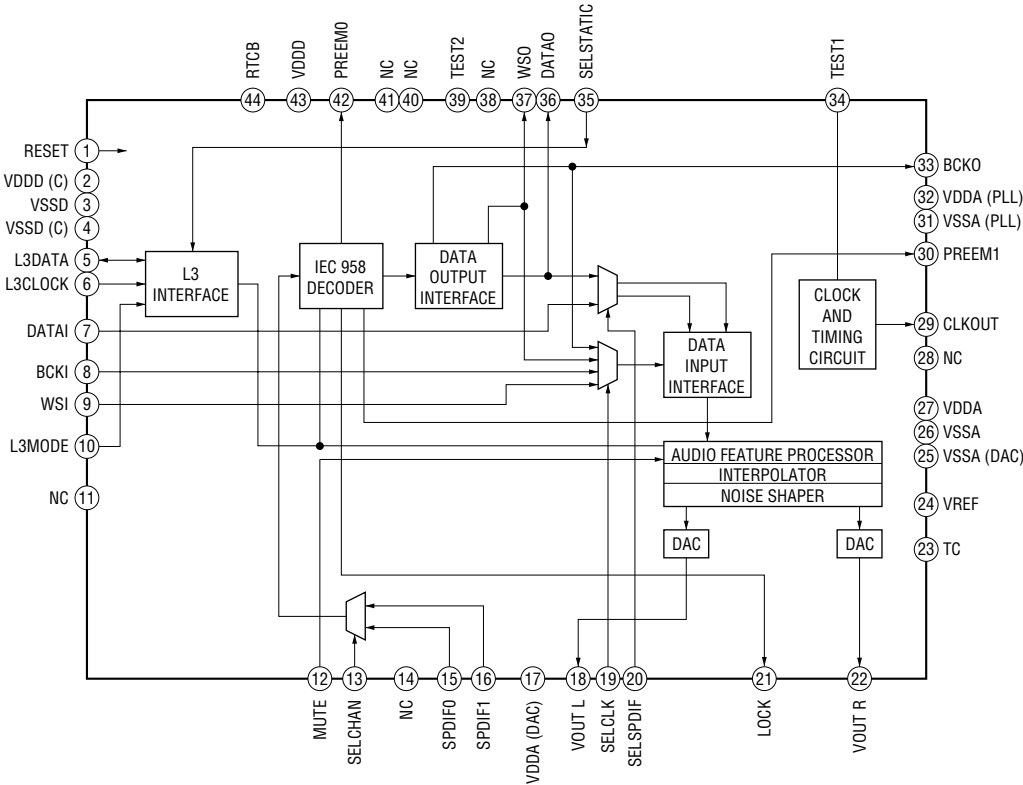
IC1004 BA6209N



IC1005  $\mu$ DA1360TS



IC1006  $\mu$ DA1350AH



## 7-20. IC PIN FUNCTION

## • IC101 CXA2523AR RF AMPLIFIER (BD BOARD)

Pin No.	Pin Name	I/O	Description
1	I	I	I-V converted RF signal I input
2	J	I	I-V converted RF signal J input
3	VC	O	Middle point voltage (+1.5V) generation output
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input
11	APC	O	Laser APC output
12	APCREF	I	Reference voltage input for setting laser power
13	GND	—	Ground
14	TEMPI	I	Temperature sensor connection
15	TEMPR	O	Reference voltage output for the temperature sensor
16	SWDT	I	Serial data input from the CXD2662R
17	SCLK	I	Serial clock input from the CXD2662R
18	XLAT	I	Latch signal input from the CXD2662R "L": Latch
19	XSTBY	I	Stand by signal input "L": Stand by
20	F0CNT	I	Center frequency control voltage input of BPF22, BPF3T, EQ from the CXD2662R
21	VREF	O	Reference voltage output (Not used)
22	EQADJ	I/O	Center frequency setting pin for the internal circuit EQ
23	3TADJ	I/O	Center frequency setting pin for the internal circuit BPF3T
24	Vcc	—	+3V power supply
25	WBLADJ	I/O	Center frequency setting pin for the internal circuit BPF22
26	TE	O	Tracking error signal output to the CXD2662R
27	CSLED	—	External capacitor connection pin for the sled error signal LPF
28	SE	O	Sled error signal output to the CXD2662R
29	ADFM	O	FM signal output of ADIP
30	ADIN	I	ADIP signal comparator input ADFM is connected with AC coupling
31	ADAGC	—	External capacitor connection pin for AGC of ADIP
32	ADFG	O	ADIP duplex signal output to the CXD2662R
33	AUX	O	I3 signal/temperature signal output to the CXD2662R (Switching with a serial command)
34	FE	O	Focus error signal output to the CXD2662R
35	ABCD	O	Light amount signal output to the CXD2662R
36	BOTM	O	RF/ABCD bottom hold signal output to the CXD2662R
37	PEAK	O	RF/ABCD peak hold signal output to the CXD2662R
38	RF	O	RF equalizer output to the CXD2662R
39	RFAGC	—	External capacitor connection pin for the RF AGC circuit
40	AGCI	I	Input to the RF AGC circuit The RF amplifier output is input with AC coupling
41	COMPO	O	User comparator output (Not used)
42	COMPP	I	User comparator input (Fixed at "L")
43	ADDC	I/O	External capacitor pin for cutting the low band of the ADIP amplifier
44	OPO	O	User operation amplifier output (Not used)
45	OPN	I	User operation amplifier inversion input (Fixed at "L")
46	RFO	O	RF amplifier output
47	MORFI	I	Groove RF signal is input with AC coupling
48	MORFO	O	Groove RF signal output

## • Abbreviation

APC: Auto Power Control

AGC: Auto Gain Control

## • IC151 CXD2662R DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO SIGNAL PROCESSOR (BD BOARD)

Pin No.	Pin Name	I/O	Description
1	MNT0 (FOK)	O	Function FOK signal output to the system control (monitor output) “H” is output when focus is on (Not used)
2	MNT1 (SHCK)	O	Track jump detection signal output to the system control (monitor output)
3	MNT2 (XBUSY)	O	Monitor 2 output to the system control (monitor output)
4	MNT3 (SLOC)	O	Monitor 3 output to the system control (monitor output) (Not used)
5	SWDT	I	Writing data signal input from the system control
6	SCLK	I (S)	Serial clock signal input from the system control
7	XLAT	I (S)	Serial latch signal input from the system control
8	SRDT	O (3)	Reading data signal output to the system control
9	SENS	O (3)	Internal status (SENSE) output to the system control
10	XRST	I (S)	Reset signal input from the system control “L”: Reset
11	SQSY	O	Subcode Q sync (SCOR) output to the system control “L” is output every 13.3 msec. Almost all, “H” is output
12	DQSY	O	Digital In U-bit CD format or MD format subcode Q sync (SCOR) output to the system control
13	RECP	I	Laser power switching input from the system control “H”: Recording, “L”: Playback
14	XINT	O	Interrupt status output to the system control
15	TX	I	Recording data output enable input from the system control
16	OSCI	I	System clock input (512Fs=22.5792 MHz)
17	OSCO	O	System clock output (512Fs=22.5792 MHz) (Not used)
18	XTSL	I	System clock frequency setting “L”: 45.1584 MHz, “H”: 22.5792 MHz (Fixed at “H”)
19	DIN0	I	Digital audio input (Optical input)
20	DIN1	I	Digital audio input (Optical input) (Fixed at “L”)
21	DOUT	O	Digital audio output (Optical output) (Open)
22	DADTI	I	Serial data input (Fixed at “L”)
23	LRCKI	I	LR clock input “H” : Lch, “L” : R ch (Fixed at “L”)
24	XBCKI	I	Serial data clock input (Fixed at “L”)
25	ADDT	I	Data input from the A/D converter
26	DADT	O	Data output to the D/A converter (Not used)
27	LRCK	O	LR clock output for the A/D and D/A converter (44.1 kHz) (Not used)
28	XBCK	O	Bit clock output to the A/D and D/A converter (2.8224 MHz) (Not used)
29	FS256	O	11.2896 MHz clock output (Not used)
30	DVDD	—	+3V power supply (Digital)
31 to 34	A03 to A00	O	DRAM address output
35	A10	O	DRAM address output (Not used)
36 to 40	A04 to A08	O	DRAM address output
41	A11	O	DRAM address output (Not used)
42	DVSS	—	Ground (Digital)
43	XOE	O	Output enable output for DRAM
44	XCAS	O	$\overline{\text{CAS}}$ signal output for DRAM
45	A09	O	Address output for DRAM
46	XRAS	O	$\overline{\text{RAS}}$ signal output for DRAM
47	XWE	O	Write enable signal output for DRAM

\* I (S) stands for Schmidt input, I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O

Pin No.	Pin Name	I/O	Description
48	D1	I/O	Data input/output for DRAM
49	D0	I/O	
50, 51	D2, D3	I/O	
52	MVCI	I (S)	Clock input from an external VCO (Fixed at “L”)
53	ASYO	O	Playback EFM duplex signal output
54	ASYI	I (A)	Playback EFM comparator slice level input
55	AVDD	—	+3V power supply (Analog)
56	BIAS	I (A)	Playback EFM comparator bias current input
57	RFI	I (A)	Playback EFM RF signal input
58	AVSS	—	Ground (Analog)
59	PCO	O (3)	Phase comparison output for the recording/playback EFM master PLL
60	FILI	I (A)	Filter input for the recording/playback EFM master PLL
61	FILO	O (A)	Filter output for the recording/playback EFM master PLL
62	CLTV	I (A)	Internal VCO control voltage input for the recording/playback EFM master PLL
63	PEAK	I (A)	Light amount signal peak hold input from the CXA2523AR
64	BOTM	I (A)	Light amount signal bottom hold input from the CXA2523AR
65	ABCD	I (A)	Light amount signal input from the CXA2523AR
66	FE	I (A)	Focus error signal input from the CXA2523AR
67	AUX1	I (A)	Auxiliary A/D input
68	VC	I (A)	Middle point voltage (+1.5V) input from the CXA2523AR
69	ADIO	O (A)	Monitor output of the A/D converter input signal (Not used)
70	AVDD	—	+3V power supply (Analog)
71	ADRT	I (A)	A/D converter operational range upper limit voltage input (Fixed at “H”)
72	ADRB	I (A)	A/D converter operational range lower limit voltage input (Fixed at “L”)
73	AVSS	—	Ground (Analog)
74	SE	I (A)	Sled error signal input from the CXA2523AR
75	TE	I (A)	Tracking error signal input from the CXA2523AR
76	DCHG	I (A)	Connected to +3V power supply
77	APC	I (A)	Error signal input for the laser digital APC (Fixed at “L”)
78	ADFG	I (S)	ADIP duplex FM signal input from the CXA2523AR (22.05 ± 1 kHz)
79	FOCNT	O	Filter f0 control output to the CXA2523AR
80	XLRF	O	Control latch output to the CXA2523AR
81	CKRF	O	Control clock output to the CXA2523AR
82	DTRF	O	Control data output to the CXA2523AR
83	APCREF	O	Reference PWM output for the laser APC
84	TEST0	O	PWM output for the laser digital APC (Not used)
85	TRDR	O	Tracking servo drive PWM output (—)

- Abbreviation  
 EFM: Eight to Fourteen Modulation  
 PLL : Phase Locked Loop  
 VCO: Voltage Controlled Oscillator

## HCD-CP500MD

Pin No.	Pin Name	I/O	Description
86	TFDR	O	Tracking servo drive PWM output (+)
87	DVDD	—	+3V power supply (Digital)
88	FFDR	O	Focus servo drive PWM output (+)
89	FRDR	O	Focus servo drive PWM output (–)
90	FS4	O	176.4 kHz clock signal output (X’tal) (Not used)
91	SRDR	O	Sled servo drive PWM output (–)
92	SFDR	O	Sled servo drive PWM output (+)
93	SPRD	O	Spindle servo drive PWM output (–)
94	SPFD	O	Spindle servo drive PWM output (+)
95	FGIN	I (S)	Test input (Fixed at “L”)
96 to 98	TEST1 to TEST3	I	
99	DVSS	—	Ground (Digital)
100	EFMO	O	EFM output when recording

- Abbreviation  
EFM: Eight to Fourteen Modulation

## • IC306 M30622MGA-A44FP MASTER CONTROL (MAIN BOARD)

Pin No.	Pin Name	I/O	Description
1	AC-CUT	I	AC CUT ON/OFF check signal input (L=ON,H=OFF)
2	POWER-ON	O	Power relay ON/OFF signal output (H=ON,L=OFF)
3	XTSL	O	XTSL signal output for IC101
4	SIRCS	I	Remote control receiver data signal input
5	DA_MUTE	O	D/A (MD) muting control signal output
6	SOL_CON	O	Solenoid(TC) control signal output (H=ON,L=OFF)
7	CAPM-CNT1	O	Capstan motor control signal output (H=REV,L=FWD,L=STOP)
8	BYTE	—	Not used (ground)
9	CNVSS	—	Connected ground
10	XCIN	I	Sub clock input
11	XCOUT	O	Sub clock output
12	RESET	I	System reset signal input
13	XOUT	O	Main system clock output
14	VSS	—	Ground
15	XIN	I	Main system clock input (16MHz)
16	VCC	—	Power supply (+5V)
17	NMI	I	Not used (connected to Vcc)
18	RDS-INT	I	RDS interrupt signal input
19	CD-SCOR	I	CD Q-data request signal input
20	MDM_POWER	O	MD P-DOWN control signal output
21	OPT-SEL	O	Optical select signal output
22	CD-XLT	O	CD latch signal output
23	CD-SENS	I	CD sense signal input
24	BU_PWM3	O	BU PWM3 signal output
25	LD_ON	O	CD LD ON signal output
26	BU_PWM2	O	BU PWM2 signal output
27	CD-CLK	O	CD clock signal output
28	BU_PWM1	O	BU PWM1 signal output
29	IIC_CLK	O	IIC clock signal output
30	IIC_DATA	O	IIC data signal output
31	FLS_SO	—	Not used (open)
32	SQ-DATA-IN	I	CD SQ data signal input
33	SQ-CLK	O	CD SQ clock signal output
34	CD-DATA	O	CD data signal output
35	LCD-DATA	O	LCD data signal output
36	LCD-CS	O	LCD CS signal output
37	LCD-SCK	O	LCD clock signal output
38	TC-MUTE	O	Tape deck line muting signal output (H=ON,L=OFF)
39	CD_XRST	O	CD reset signal output
40	IN SW	I	Tray close detect signal input
41	OPEN SW	I	Tray open detect signal input
42	TRAY-CLOSE	O	Loading motor control signal output
43	TRAY-OPEN	O	Loading motor control signal output
44	REC/PB/PASS	O	REC/PB/PASS select signal output
45	B_PLAY	I	B deck play signal input
46	OPT-SEL	—	Not used (Fixed at "H")
47	(DOLBY-ON)	—	Not used
48	REC MUTE	O	TC REC muting ON/OFF signal output
49	MD RESET	O	MD reset signal output
50	CD-POWER	O	CD power control signal output (H=ON,L=OFF)
51	RDS-DATA	I	RDS data signal input

## HCD-CP500MD

Pin No.	Pin Name	I/O	Description
52	H/P_CHECK	I	Headphone detect signal input
53	H/P_MUTE	O	Headphone muting control signal output
54	AMP_MUTE	O	Power amplifier muting control signal output (L=ON,H=OFF)
55	VOL_CLK	O	Volume clock signal output
56	VOL_DATA	O	Volume data signal output
57	STK_POWER	O	Power amplifier ON/OFF signal output (H=ON,L=OFF)
58	LINE-MUTE	O	Line muting control signal output (H=ON,L=OFF)
59	NC	—	Not used
60	NC	—	Not used
61	NC	—	Not used
62	VCC	—	Power supply (+5V)
63	NC	—	Not used
64	VSS	—	Ground
65	NC	—	Not used
66	FM_ON	O	FM ON/OFF signal output (H=ON,L=OFF)
67	TU_ON	O	Tuner power ON/OFF signal output (H=ON,L=OFF)
68	TUNED	I	TUNED detect signal input
69	ST_DOUT	I	Tuner data signal input
70	ST_CLK	O	Tuner clock output
71	ST_DIN	O	Tuner data signal output
72	ST_CE	O	Tuner chip enable output
73	NC	—	Not used
74	POWER_KEY	I	Power key detect signal input
75	PC_POWER	I	PC power detect signal input for PC LINK
76	LCD_BACK_LIGHT	O	LCD back light LED control signal output
77	LCD-RS	O	LCD reset signal output
78	TUNER-LED	O	Tuner LED control signal output
79	CD_LED	O	CD LED control signal output
80	MD_LED	O	MD LED control signal output
81	TC_LED	O	TC LED control signal output
82	VOL_A	I	Volume signal input from rotary encoder
83	VOL_B	I	Volume signal input from rotary encoder
84	BASS-B	I	BASS signal input from rotary encoder
85	TREBLE-A	I	TREBLE signal input from rotary encoder
86	TREBLE-B	I	TREBLE signal input from rotary encoder
87	MD_INDICATOR_LED	O	MD INDICATOR LED control signal output
88	DSG-LED	O	DSG LED control signal output
89	KEY0	I	Key input signal from function switch
90	KEY1	I	Key input signal from function switch
91	KEY2	I	Key input signal from function switch
92	BASS-A	I	BASS signal input from rotary encoder
93	B-SHUT(SENSOR)	I	B deck reel pulse signal input
94	B_HALF/REC	I	B deck half detect signal input
95	MODEL_IN	I	Model input
96	AG	—	Analog ground
97	SPEC_IN	I	Version select input
98	VREF	—	Analog voltage reference
99	AVCC	—	Analog power supply
100	SOFT_TEST	O	Soft check output (open)



• IC1001 M30805MG-205GP SYSTEM CONTROL (DIGITAL BOARD)

Pin No.	Pin Name	I/O	Description
1	—	—	Not used
2	—	—	Not used
3	LVL1	—	Not used
4	LVL0	—	Not used
5	(TXD3)	—	Not used
6	(RXD3)	—	Not used
7	(CLK3)	—	Not used
8	MUTE	O	Line out muting output L: Muting
9	DARST	O	Reset signal output to the D/A converter L: Active
10	SLICERSEL	O	IEC958 input select signal output to the D/A converter L: CD H: MD
11	LD-LOW	O	Loading motor voltage control output L: High voltage H: Low voltage
12	LDIN	I	Loading motor control input H: IN
13	LDOUT	O	Loading motor control output H: OUT
14	MOD	O	Laser modulation switching signal output L: OFF H: ON
15	BYTE	I	Data bus changed input (Connected to ground)
16	CNVSS	—	Ground
17	X-CIN	O	Sub clock input (32.768kHz) (Not used)
18	X-COUT	O	Sub clock output (32.768kHz) (Not used)
19	RESET	I	System rest input L : ON
20	XOUT	O	Main clock output (10MHz)
21	VSS0	—	Ground
22	XIN	I	Main clock input (10MHz)
23	VCC0	—	Power supply (+3.3V)
24	NMI	I	Fixed at H (Pull-up)
25	DQSY	I	Digital in sync input (Record system)
26	P.DOWN	I	Power down detection input L: Power down
27	SQSY	I	ADIP (MO) sync or subcode Q (PIT) sync input from CXD2662R (Playback system)
28	NC	—	Not used
29	LDON	O	Laser ON/OFF control output H: Laser ON
30	LIMIT-IN	I	Detection input from the limit switch L: Sled limit-In H: Sled limit-Out
31	C2-PWM-B	—	Not used
32	XINIT	I	Interrupt status input from CXD2662R
33	—	—	Not used
34	XELT	I	XELT input from DSP IC
35	WR PWR	O	Write power ON/OFF output L: OFF H: ON
36	IIC CLK	I/O	IIC serial clock input/output
37	IIC DATA	I/O	IIC serial data input/output
38	SWDT	O	Writing data signal output to the serial bus
39	VCC1	—	Power supply (+3.3V)
40	SRDT	I	Reading data signal input from the serial bus
41	VSS1	—	Ground
42	SCLK	O	Clock signal output to the serial bus
43	REC-SW	I	Detection signal input from the recording position detection switch L: REC
44	CLIP DTO	O	CLIP serial data output
45	CLIPDTI	I	CLIP serial data input
46	CLIP CLK	O	CLIP serial clock output (Not used)
47	DIG-RST	O	Digital rest signal output to the CXD2662R and motor driver L: Reset
48	SENS	I	Internal status (SENSE) input from the CXD2662R
49	PLAY-SW	I	Detection signal input from the playback position detection switch L: PLAY
50	XLAT	O	Latch signal output to DSP IC
51	OUT-SW	I	Detection signal input from the loading out detection switch

# HCD-CP500MD

Pin No.	Pin Name	I/O	Description
52	—	—	Not used
53	—	—	Not used
54	—	—	Not used
55	—	O	Not used
56	MNT2 (XBUSY)	I	In the state of executive command from the CXD2662R
57	VSS2	—	Ground
58	MNT1 (SHCK)	I	Track jump signal input from the CXD2662R
59	VCC2	—	Power supply (+3.3V)
60	EEP-WP	O	EEP-ROM write protect signal output L: write possibility
61	SDA (EEP)	I/O	Data signal input/output pin with the EEPROM
62	BCLK/ALE/CLKO	—	Not used
63	RD/DW	O	Read signal output (Not used)
64	BHE/CASH	—	Not used
65	WR/CASL	O	Write signal output
66	SCL	O	Clock signal output to the EEPROM
67	REFLECT	I	Disk reflection rate detection input from the reflect detection switch H: Disk with low reflection rate
68	PROTECT	I	Recording-protection claw detection input from the protection detection switch H: Protect
69	CS0	O	Chip select signal output to the Flash ROM
70	CS1	O	Not used
71	—	O	Not used
72	A20	O	Address bus signal output to Flash ROM
73	A19	O	Address bus signal output to Flash ROM (Not used)
74	VCC3	—	Power supply (+3.3V)
75	A18	O	Address bus signal output to Flash ROM (Not used)
76	VSS3	—	Ground
77 to 85	A17 to A9	O	Address bus signal output to Flash ROM
86 to 89	SEL 3 to 0	O	Not used
90	WP	O	Write protect signal to the Flash ROM
91	VCC4	—	Power supply (+3.3V)
92	A8	O	Address bus signal output to Flash ROM (Not used)
93	VSS4	—	Ground
94 to 100	A7 to A1	O	Address bus signal output to Flash ROM (Not used)
101	LB	—	Not used
102 to 113	D15 to D4	I/O	Data bus signal input/output to the Flash ROM (Not used)
114	CLIP-SEL	O	Not used
115	IIC BUSY	O	IIC cable connect check L: Active
116	DALOCK	O	LOCK signal input from D/A converter
117	LINE-MUTE	O	Not used
118	ADP DOWN	O	Reset signal output to the A/D converter
119 to 122	D3 to D0	I/O	Data bus signal input/output to the Flash ROM (Not used)
123	SPDIF-CUT	—	Jog dial pulse input from the rotary encoder
124	OPT SEL	O	Optical select signal output
125 to 129	—	—	Not used
130	VSS5	—	Ground
131	—	O	Not used
132	VCC5	—	Power supply (+3.3V)
133	OP-LEVEL	I	Optical Pick-up voltage (current) detect signal input
134 to 139	—	—	Not used
140	AVSS	—	Ground (Analog)
141	—	—	Not used
142	VREF	—	Power supply (+3.3V)
143	AVCC	—	Power supply (+3.3V)
144	NC	I	Not used

SECTION 8  
EXPLODED VIEWS

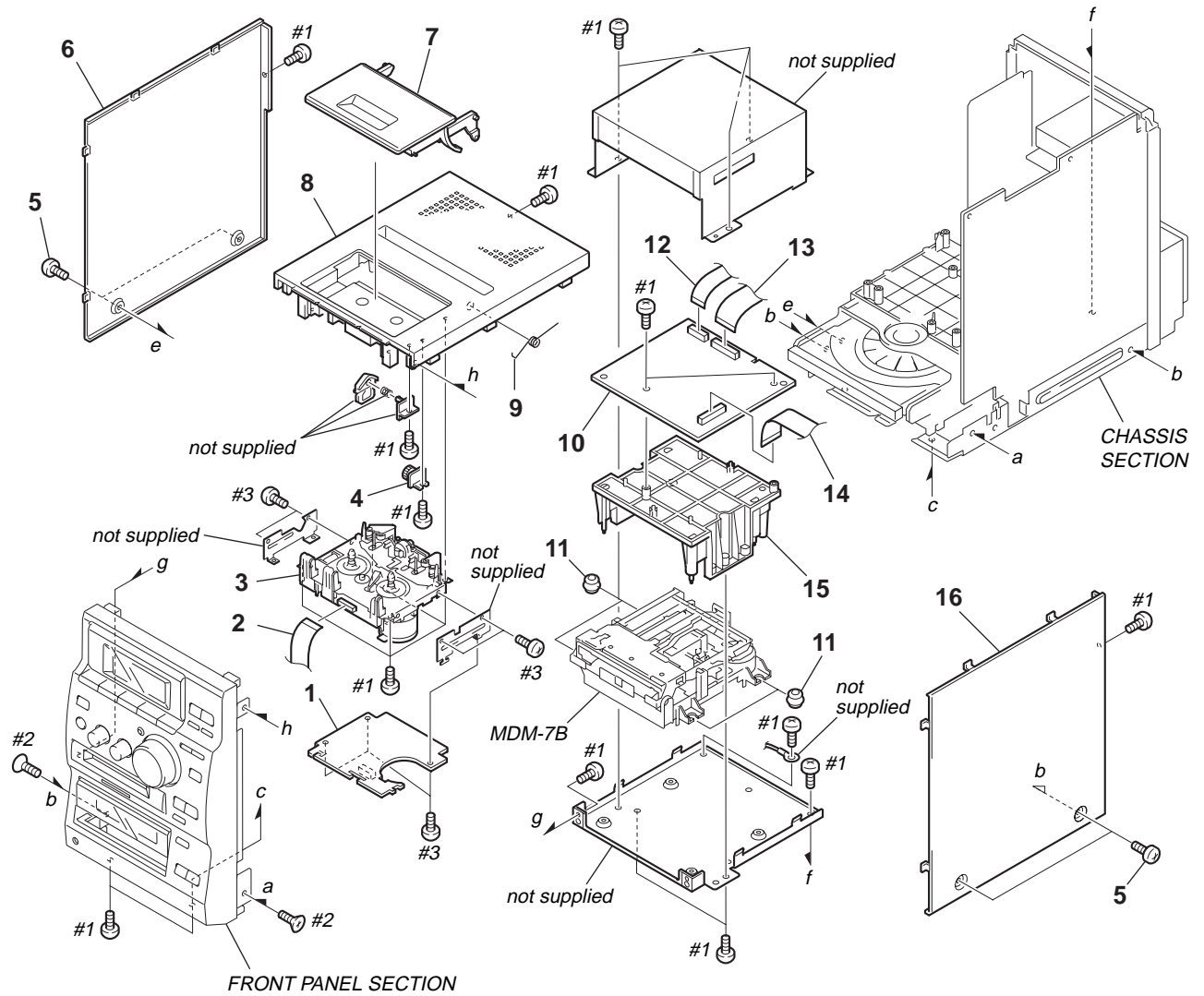
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation  
AUS : Australian model  
CH : Chinese model  
E51 : Chilean and Peruvian model  
HK : Hong Kong model

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

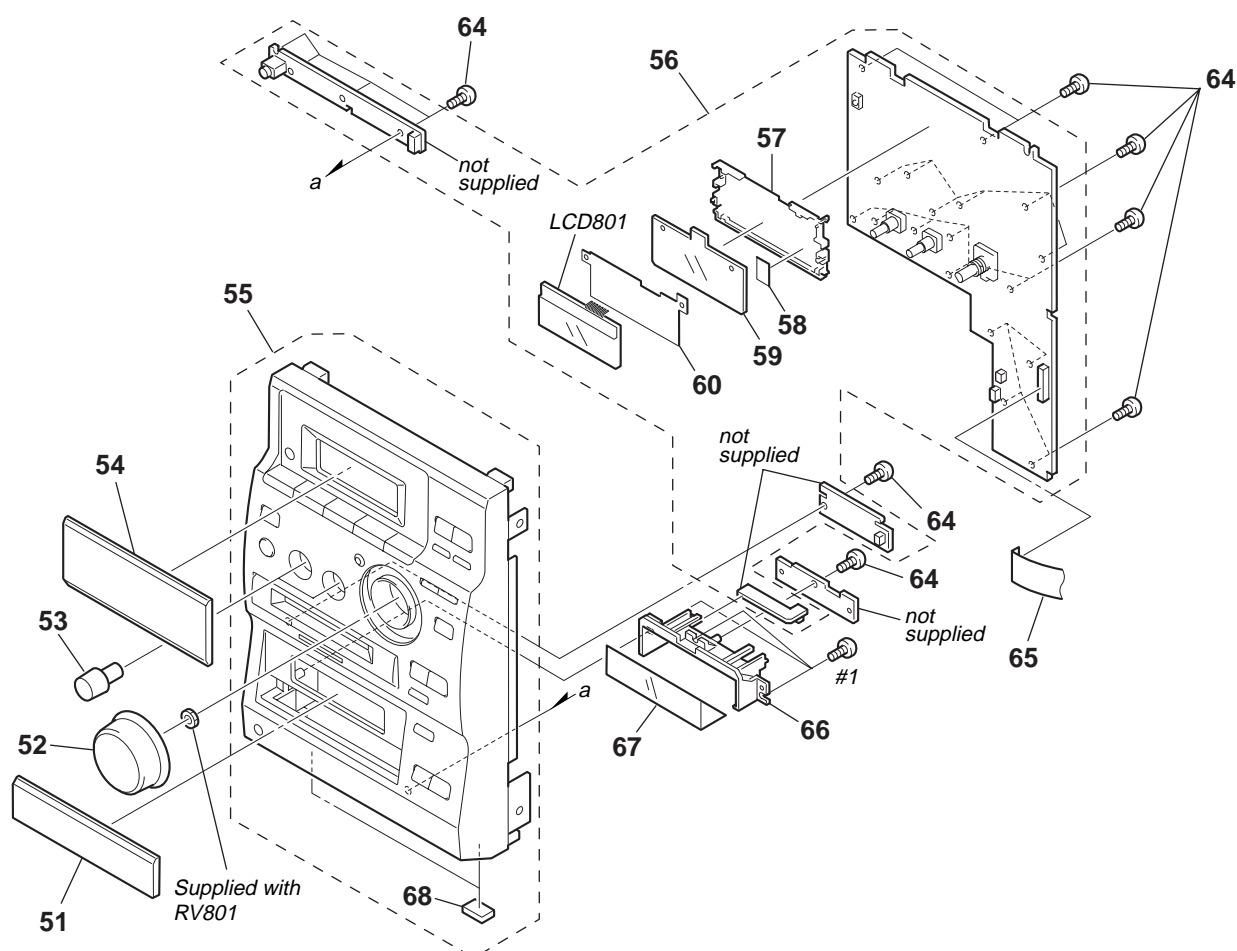
以阴影和 $\triangle$ 标志来识别的零部件在安全方面具有关键性。因此只能以规定号码的零部件来更换。

8-1. CASE AND TAPE MECHANISM DECK SECTION



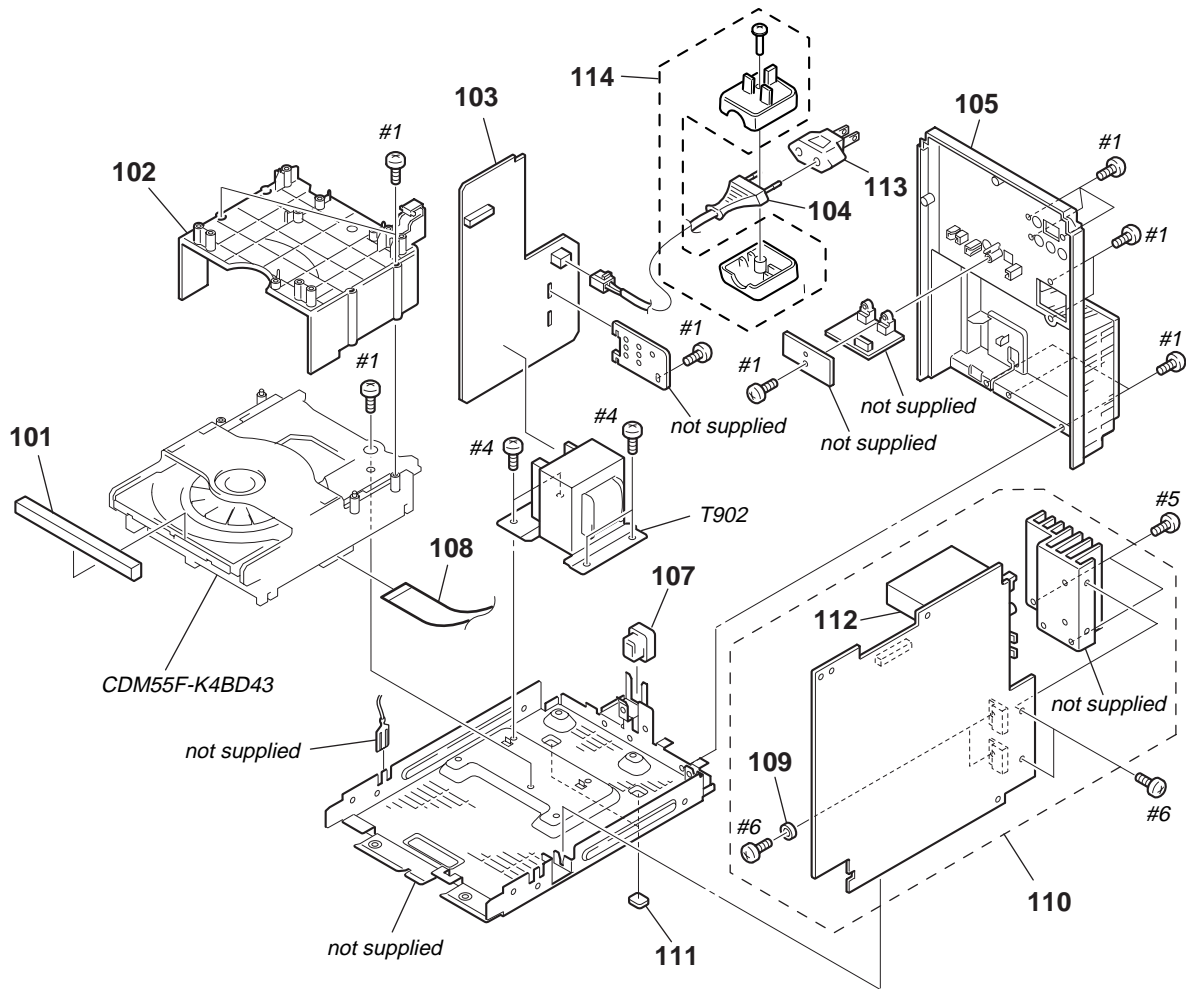
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	A-4725-838-A	TC BOARD, COMPLETE		9	4-234-564-01	SPRING (CASSETTE OPEN)	
2	1-757-943-11	WIRE (FLAT TYPE)(12CORE)		10	A-4725-834-A	DIGITAL BOARD, COMPLETE	
3	1-796-101-11	DECK, MECH		11	4-231-555-01	INSULATOR	
4	3-926-926-01	GEAR, DAMPER		12	1-757-944-11	WIRE (FLAT TYPE)(17CORE)	
5	4-221-580-01	SCREW, CASE		13	1-757-942-11	WIRE (FLAT TYPE)(27CORE)	
6	4-234-555-01	SIDE PANEL (L)		14	1-792-767-11	WIRE (FLAT TYPE)(25 CORE)	
7	X-4953-835-1	HOLDER ASSY, CASSETTE		15	4-234-554-01	COVER, MD	
8	4-234-546-01	PANEL, TOP		16	4-234-556-01	SIDE PANEL (R)	

## 8-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	4-232-471-01	WINDOW, CD		58	4-234-563-01	ADHESIVE (LCD WINDOW)	
52	4-232-441-01	KNOB (VOL)		59	4-217-319-21	PLATE, LCD LIGHT	
53	4-234-573-01	KNOB (TIBASS)		60	4-234-566-01	LCD SHIEET	
54	4-234-562-01	WINDOW (LCD)		64	7-685-134-19	SCREW (DIA.2.6X8)(IT3B), TAPPING	
55	X-4953-821-1	PANEL SUB ASSY, FRONT (AEP, UK)		65	1-757-946-11	WIRE (FLAT TYPE)(25 CORE)	
55	X-4953-822-1	PANEL SUB ASSY, FRONT (AUS, E51, HK)		66	4-234-559-01	HOLDER (PRISM)	
55	X-4953-964-1	PANEL SUB ASSY, FRONT (CH)		67	4-232-451-01	PRISM	
56	A-2056-914-A	CONTROL BOARD, COMPLETE (Including CD-PRISM board, HEAD PHONE board, MD-INDICATE board and OPTICAL bpard)		68	4-232-478-01	FOOT	
57	4-234-522-01	HOLDER (LCD)		LCD801	1-804-393-11	DISPLAY PANEL, LIQUID CRYSTAL	

8-3. CHASSIS SECTION

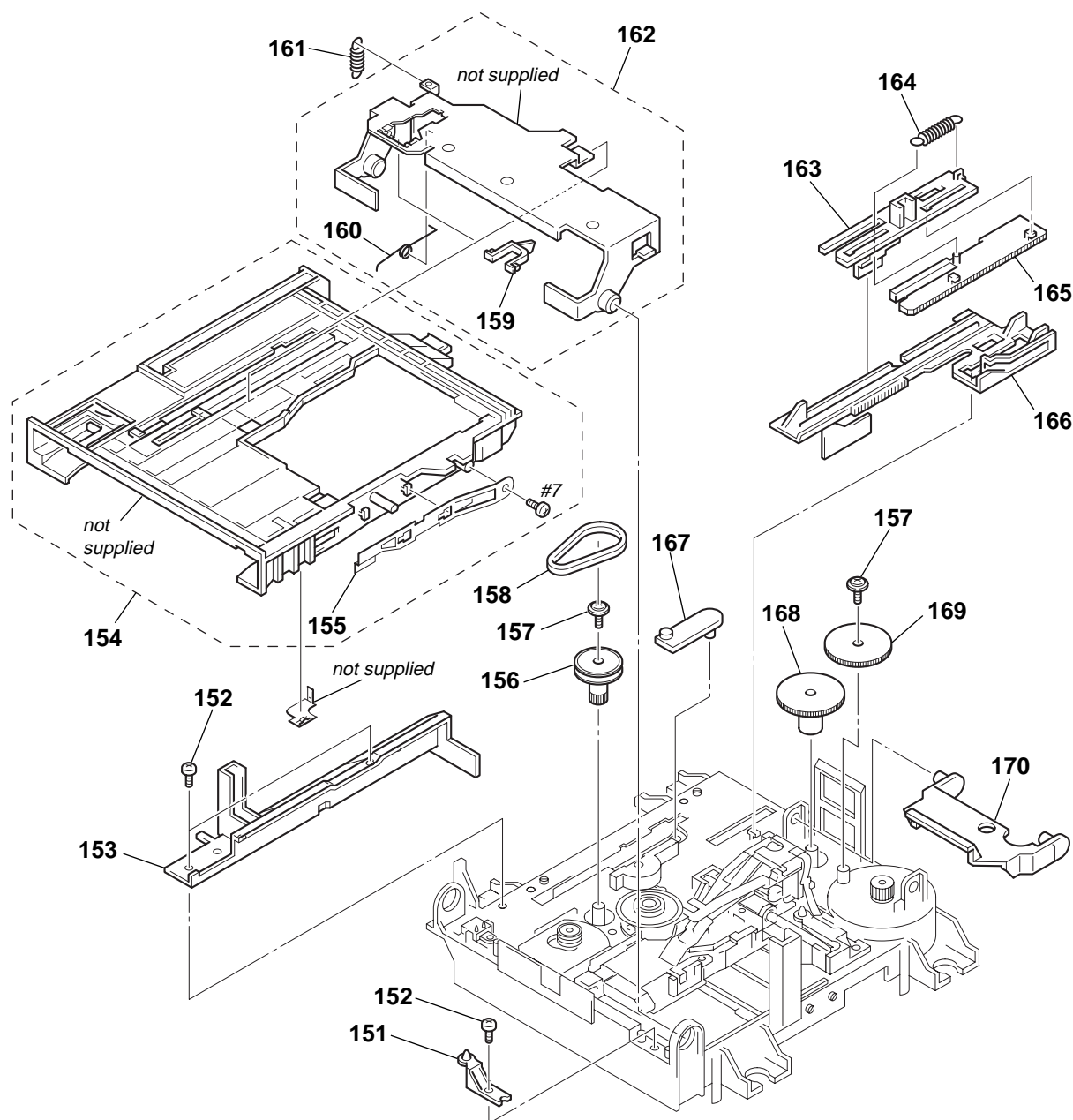


Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
101	4-232-434-01	LID, CD		110	A-4725-837-A	MAIN BOARD, COMPLETE (AEP, UK)	
102	4-234-551-01	BRACKET, MPEG		110	A-4725-849-A	MAIN BOARD, COMPLETE (AUS)	
103	A-4725-836-A	POWER BOARD, COMPLETE (AEP, UK, AUS, CH)		110	A-4726-237-A	MAIN BOARD, COMPLETE (CH)	
103	A-4725-850-A	POWER BOARD, COMPLETE (E51, HK)		110	A-4726-248-A	MAIN BOARD, COMPLETE (E51)	
△ 104	1-696-169-11	CORD, POWER (AEP, UK, E51, HK)		110	A-4727-454-A	MAIN BOARD, COMPLETE (HK)	
△ 104	1-696-848-41	CORD, POWER (AUS)		111	4-232-478-01	FOOT	
△ 104	1-782-464-21	CORD, POWER (CH)		112	A-4303-626-A	TUNER UNIT (E51, HK)	
105	4-234-568-01	PANEL, BACK (AEP, UK, AUS, CH)		△ 114	1-770-019-11	ADPTOR, CONVERSION PLUG 3P (UK, HK)	
105	4-234-568-41	PANEL, BACK (E51, HK)		△ T902	1-437-248-21	TRANSFORMER, POWER	
106	A-2056-914-A	OPTICAL BOARD, COMPLETE					
107	4-217-350-11	STOPPER, CORD (AEP, UK, AUS, CH, E51, HK)					
108	1-757-943-11	WIRE (FLAT TYPE)(22CORE)					
109	4-217-354-11	BUSHING, INSULATING					

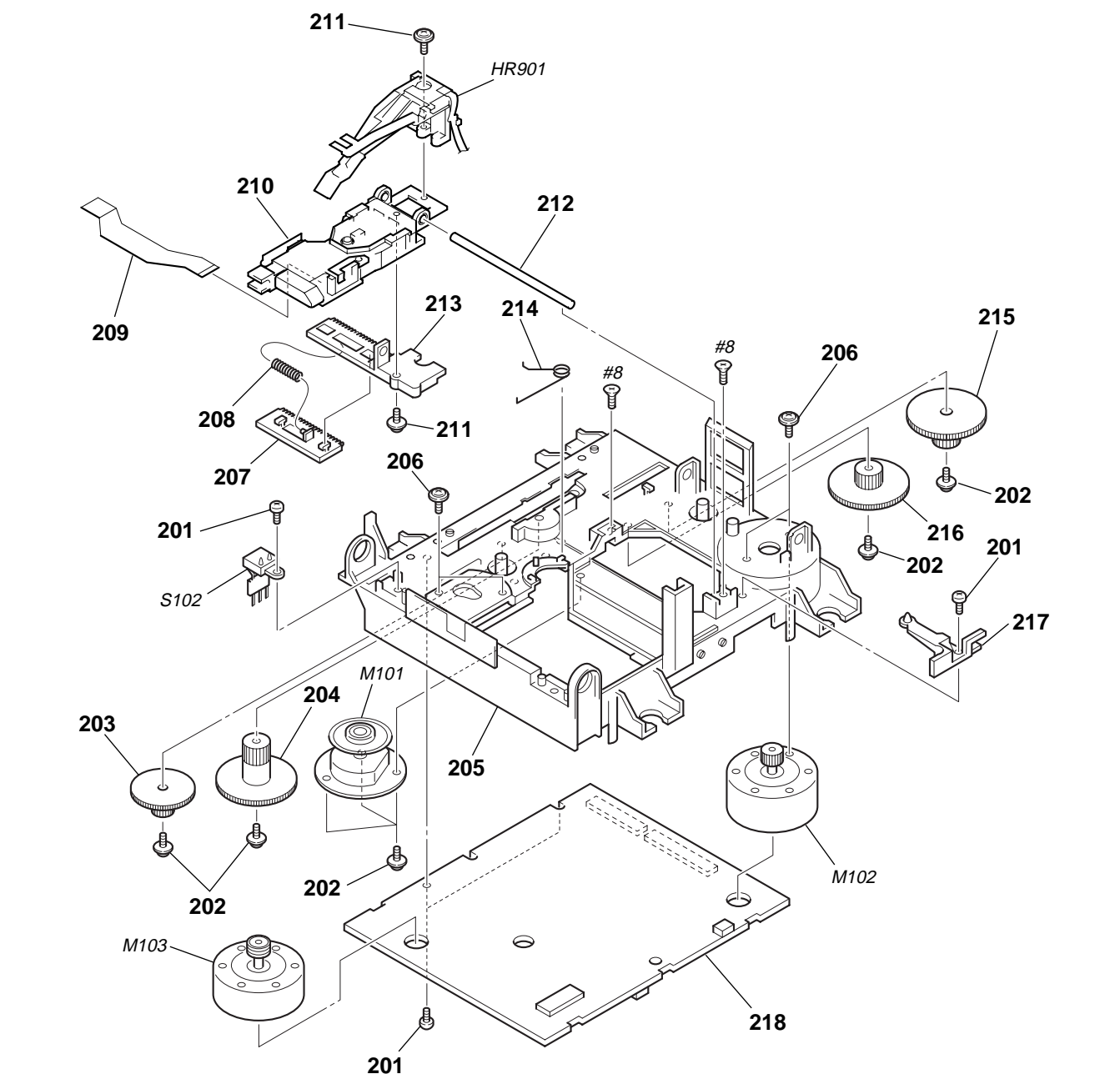
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

以阴影和 △ 标志来识别的零部件，在安全方面具有关键性，因此只能以规定号码的零部件来更换。

8-4. MD MECHANISM DECK SECTION-1  
(MDM-7B)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* 151	4-996-267-01	BASE (BU-D)		161	4-227-012-01	SPRING (HOLDER), TENSION	
152	4-231-319-01	SCREW (+BTP)(2X6)		162	A-4680-638-B	PLATE (HOLDER) ASSY, RETAINER	
153	4-226-994-01	GUIDE (L)		163	4-226-996-01	LIMITTER (EJ)	
154	A-4735-075-A	HOLDER ASSY		164	4-227-013-01	SPRING (EJ), TENSION	
155	X-4952-665-1	SPRING (SHT) ASSY, LEAF		165	4-226-995-01	SLIDER (EJ)	
156	4-227-002-01	GEAR, PULEY		166	4-226-997-04	SLIDER	
157	3-372-761-01	SCREW (M1.7), TAPPING		167	4-226-998-01	LEVER (CHG)	
158	4-227-025-01	BELT (LOADING)		168	4-227-007-01	GEAR (SB)	
159	4-228-923-01	LOCK (HOLDER)		169	4-227-006-01	GEAR (SA)	
160	4-229-533-01	SPRING (STOPPER), TORSION		170	4-226-999-01	LEVER (HEAD)	

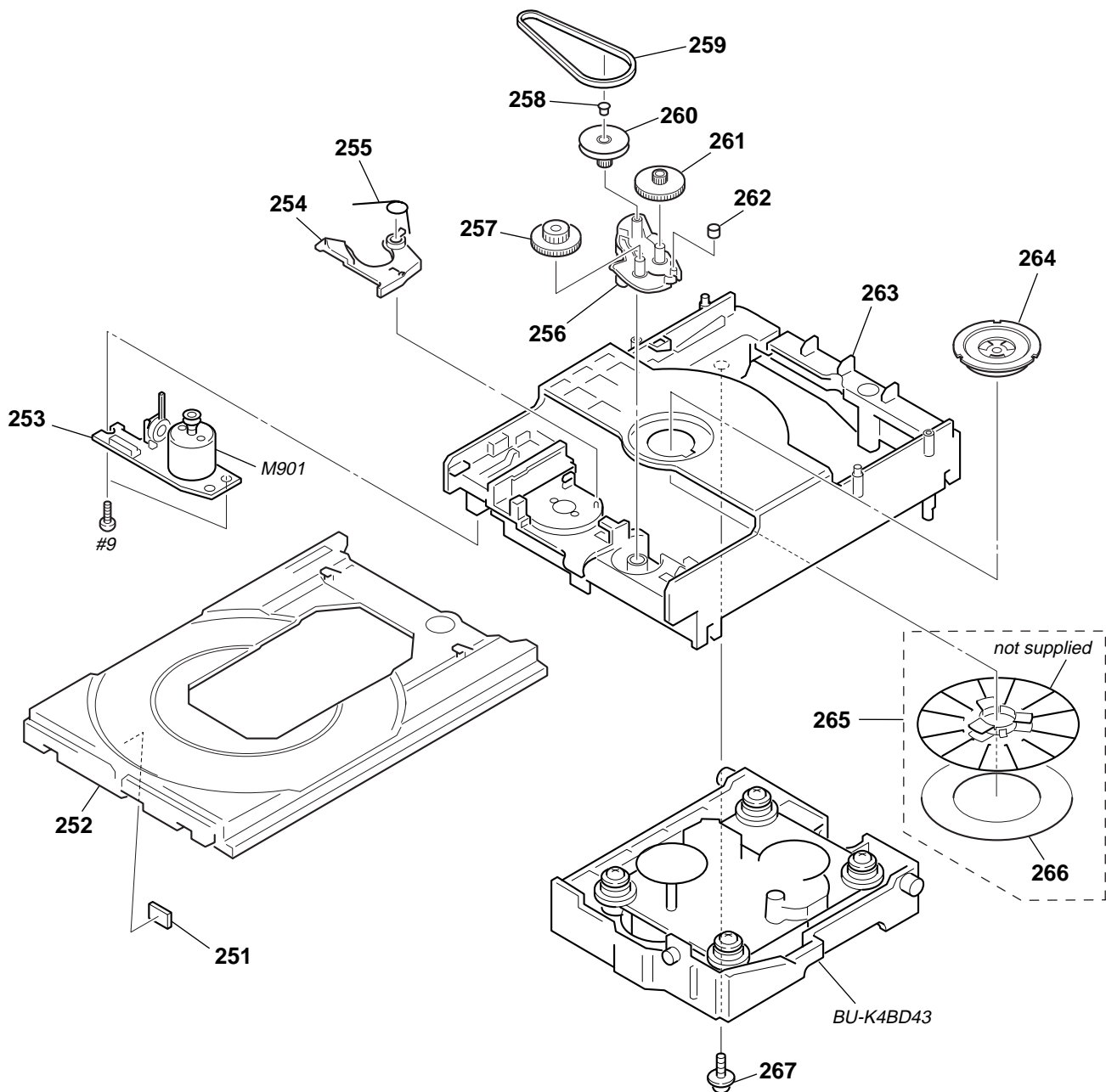
8-5. MD MECHANISM DECK SECTION-2  
(MDM-7B)

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
201	4-231-319-01	SCREW (+BTP)(2X6)		214	4-227-023-01	SPRING (SPINDLE), TORSION	
202	3-372-761-01	SCREW (M1.7), TAPPING		215	4-227-008-01	GEAR (SC)	
203	4-227-004-01	GEAR (LC)		216	4-227-009-01	GEAR (SD)	
204	4-227-005-01	GEAR (LD)		217	4-226-990-01	BASE (BU-A)	
205	4-226-989-01	CHASSIS					
206	4-232-270-01	SCREW (1.7X2.5), +PWH		218	A-4725-473-A	BD BOARD, COMPLETE	
207	4-226-993-01	RACK		HR901	1-500-670-11	HEAD, OVER WRITE	
208	4-227-014-01	SPRING (RACK), COMPRESSION		M101	A-4672-898-A	MOTOR ASSY, SPINDLE	
209	1-678-514-11	FLEXIBLE BOARD		M102	A-4735-076-A	MOTOR ASSY, SLED	
△210	A-4672-541-A	OPTICAL PICK-UP KMS-260B		M103	A-4735-074-A	MOTOR ASSY, LOADING(MD)	
211	4-988-560-01	SCREW (+P 1.7X6)		S102	1-771-957-11	SWITCH, PUSH (2KEY)(REFLECT/PROTECT)	
212	4-996-265-01	SHAFT, MAIN					
213	4-226-992-01	BASE, SL					

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

以阴影和 △ 标志来识别的零部件，在安全方面具有关键性，因此只能以规定号码的零部件来更换。

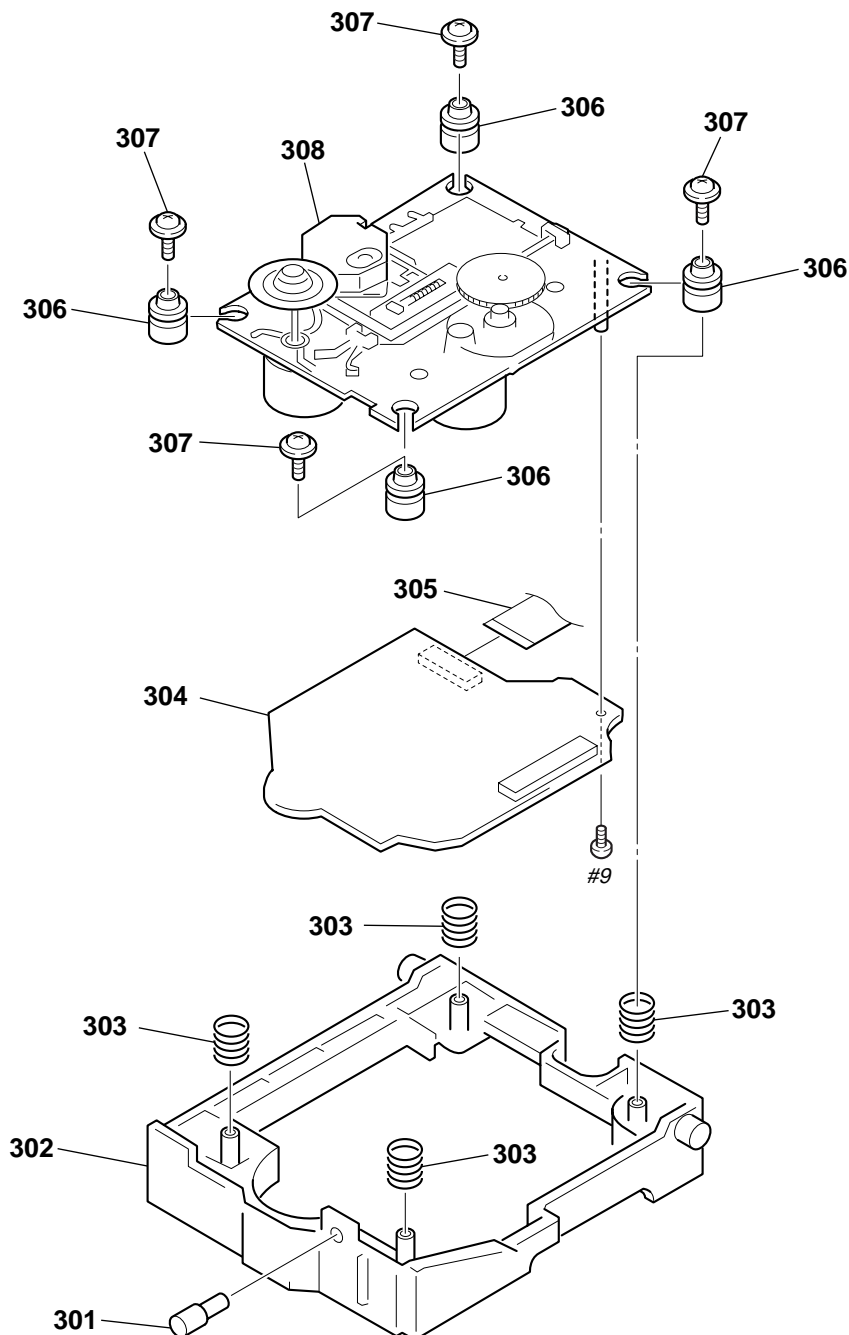
## 8-6. CD MECHANISM DECK SECTION-1 (CDM55F-K4BD43)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
251	4-925-315-31	DAMPER		260	4-220-234-01	PULLEY (LDG)	
252	4-224-894-01	TRAY		261	4-220-237-01	GEAR (A)	
253	1-676-599-11	LOADING BOARD		262	4-221-815-01	ROLLER	
254	4-220-229-01	LEVER (SW)		263	4-231-779-01	CHASSIS (F)	
255	4-220-239-01	SPRING, TORSION		264	A-4735-082-A	MAGNET ASSY	
256	4-220-233-01	CAM (CDM55)		265	A-4735-081-A	PULLEY (AT-55F) ASSY	
257	4-220-238-01	GEAR (B)		266	4-232-398-01	SHEET (KH)	
258	4-227-598-01	SPACER (55)		267	4-985-672-01	SCREW (+PTPWHM2.6), FLOATING	
259	4-221-816-01	BELT (CDM55)		M901	A-2004-893-A	MOTOR (LD) ASSY	



## 8-7. CD MECHANISM DECK SECTION-2 (BU-K4BD43)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
301	4-221-817-02	SHAFT (BU)		305	1-757-055-11	WIRE (FLAT TYPE)(16 CORE)	
302	4-231-780-01	HOLDER (BU)		306	4-229-005-01	INSULATOR (213)	
303	4-229-004-01	SPRING (213), COMPRESSION		307	4-985-672-01	SCREW (+PTPWHM2.6), FLOATING	
304	A-4476-973-A	CD BOARD, COMPLETE		△ 308	A-4735-357-A	BASE ASSY, OP (KSM-213DHAP/Z-NP)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

以阴影和 △ 标志来识别的零部件，在安全方面具有关键性，因此只能以规定号码的零部件来更换。

SECTION 9  
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
  - -XX, -X mean standardized parts, so they may have some difference from the original one.
  - Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
  - RESISTORS  
All resistors are in ohms.  
METAL: metal-film resistor  
METAL OXIDE: Metal Oxide-film resistor  
F: nonflammable
- CAPACITORS:  
uF:  $\mu$ F  
COILS  
uH:  $\mu$ H  
SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...:  $\mu$ A..., uPA...,  $\mu$ PA...,  
uPB...,  $\mu$ PB..., uPC...,  $\mu$ PC...,  
uPD...,  $\mu$ PD...  
Abbreviation  
AUS : Australian model.  
CH : Chinese model.  
E51 : Chilean and Peruvian model.  
HK : Hong Kong model.

When indicating parts by reference number, please include the board name.

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

以阴影和  $\triangle$  标志来识别的零部件在安全方面具有关键性。因此只能以规定号码的零部件来更换。

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
	A-4725-473-A	BD BOARD, COMPLETE		C156	1-164-156-11	CERAMIC CHIP 0.1uF	25V
		*****		C157	1-164-156-11	CERAMIC CHIP 0.1uF	25V
		< CAPACITOR >		C158	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C101	1-135-259-11	TANTAL. CHIP 10uF	20.00% 6.3V	C159	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C102	1-135-259-11	TANTAL. CHIP 10uF	20.00% 6.3V	C160	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C103	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C161	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C104	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V	C162	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C105	1-115-416-11	CERAMIC CHIP 0.001uF	5.00% 25V	C163	1-125-891-11	CERAMIC CHIP 0.47uF	10.00% 10V
C106	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C164	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C107	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C165	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
C108	1-162-969-11	CERAMIC CHIP 0.0068uF	10% 25V	C166	1-125-891-11	CERAMIC CHIP 0.47uF	10.00% 10V
C109	1-164-677-11	CERAMIC CHIP 0.033uF	10.00% 16V	C167	1-164-245-11	CERAMIC CHIP 0.015uF	10.00% 25V
C110	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C169	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C111	1-117-720-11	CERAMIC CHIP 4.7uF	10V	C173	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C112	1-110-563-11	CERAMIC CHIP 0.068uF	10.00% 16V	C174	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C113	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V	C180	1-117-370-11	CERAMIC CHIP 10uF	10V
C114	1-125-837-00	CERAMIC CHIP 1uF	10% 6.3V	C181	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C115	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V	C182	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C116	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V	C183	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C117	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C184	1-117-970-11	ELECT CHIP 22uF	20.00% 10V
C118	1-165-176-11	CERAMIC CHIP 0.047uF	10.00% 16V	C185	1-131-872-11	CERAMIC CHIP 1000PF	10% 630V
C119	1-165-176-11	CERAMIC CHIP 0.047uF	10.00% 16V	C191	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C120	1-164-156-11	CERAMIC CHIP 0.1uF	25V	C192	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C121	1-164-156-11	CERAMIC CHIP 0.1uF	25V	C193	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C125	1-117-720-11	CERAMIC CHIP 4.7uF	10V	C194	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C128	1-164-156-11	CERAMIC CHIP 0.1uF	25V	C195	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C131	1-117-720-11	CERAMIC CHIP 4.7uF	10V	C196	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C132	1-164-156-11	CERAMIC CHIP 0.1uF	25V	C1401	1-117-720-11	CERAMIC CHIP 4.7uF	10V
C133	1-164-156-11	CERAMIC CHIP 0.1uF	25V			< CONNECTOR >	
C141	1-126-206-11	ELECT CHIP 100uF	20% 6.3V	CN101	1-766-833-21	CONNECTOR, FFC/FPC (ZIF) 21P	
C142	1-164-156-11	CERAMIC CHIP 0.1uF	25V	CN102	1-784-835-21	CONNECTOR, FFC (LIF (NON-ZIF)) 27P	
C143	1-164-156-11	CERAMIC CHIP 0.1uF	25V	CN103	1-784-869-21	CONNECTOR, FFC (LIF (NON-ZIF)) 17P	
C144	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	* CN104	1-580-055-21	PIN, CONNECTOR (SMD) 2P	
C145	1-164-156-11	CERAMIC CHIP 0.1uF	25V	CN105	1-784-859-21	CONNECTOR, FFC (LIF (NON-ZIF)) 7P	
C146	1-117-720-11	CERAMIC CHIP 4.7uF	10V			< DIODE >	
C147	1-117-720-11	CERAMIC CHIP 4.7uF	10V	D101	8-719-988-61	DIODE 1SS355TE-17	
C151	1-117-370-11	CERAMIC CHIP 10uF	10V	D181	8-719-080-81	DIODE FS1J6	
C152	1-164-156-11	CERAMIC CHIP 0.1uF	25V	D183	8-719-080-81	DIODE FS1J6	
C153	1-164-156-11	CERAMIC CHIP 0.1uF	25V				
C154	1-126-206-11	ELECT CHIP 100uF	20% 6.3V				
C155	1-164-156-11	CERAMIC CHIP 0.1uF	25V				

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
< IC >				R106	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
IC101	8-752-080-95	IC CXA2523AR		R107	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
IC102	8-759-473-51	IC TLV2361CDBV		R108	1-216-833-11	METAL CHIP	10K 5% 1/16W
IC141	8-759-836-79	IC BH6519FS-E2		R109	1-216-845-11	METAL CHIP	100K 5% 1/16W
IC151	8-752-404-64	IC CXD2662R		R110	1-216-845-11	METAL CHIP	100K 5% 1/16W
IC152	6-700-052-01	IC MSM51V17400F-50TS-K		R111	1-216-833-11	METAL CHIP	10K 5% 1/16W
IC181	8-759-481-17	IC MC74ACT08DTR2		R112	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
IC190	8-759-677-64	IC L88M35T		R113	1-216-833-11	METAL CHIP	10K 5% 1/16W
IC195	8-759-640-41	IC BR24C08F-E2		R114	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
< CONDUCTOR >				R115	1-216-833-11	METAL CHIP	10K 5% 1/16W
JW201	1-216-295-00	SHORT	0	R116	1-216-839-11	METAL CHIP	33K 5% 1/16W
JW202	1-216-295-00	SHORT	0	R117	1-216-837-11	METAL CHIP	22K 5% 1/16W
JW203	1-216-295-00	SHORT	0	R118	1-218-855-11	METAL CHIP	2.2K 0.5% 1/16W
JW903	1-216-295-00	SHORT	0	R119	1-218-863-11	METAL CHIP	4.7K 0.5% 1/16W
JW904	1-216-295-00	SHORT	0	R120	1-218-889-11	METAL CHIP	56K 0.5% 1/16W
< FERRITE BEAD/CONDUCTOR >				R121	1-218-863-11	METAL CHIP	4.7K 0.5% 1/16W
L101	1-500-245-11	FERRITE	0uH	R122	1-218-855-11	METAL CHIP	2.2K 0.5% 1/16W
L102	1-500-245-11	FERRITE	0uH	R123	1-216-819-11	METAL CHIP	680 5% 1/16W
L103	1-500-245-11	FERRITE	0uH	R124	1-216-809-11	METAL CHIP	100 5% 1/16W
L105	1-414-235-11	FERRITE	0uH	R125	1-216-815-11	METAL CHIP	330 5% 1/16W
L106	1-500-245-11	FERRITE	0uH	R126	1-216-819-11	METAL CHIP	680 5% 1/16W
L121	1-500-245-11	FERRITE	0uH	R127	1-216-845-11	METAL CHIP	100K 5% 1/16W
L122	1-500-245-11	FERRITE	0uH	R128	1-219-724-11	METAL CHIP	1 1% 1/4W
L131	1-500-245-11	FERRITE	0uH	R129	1-216-298-00	METAL CHIP	2.2 5% 1/10W
L141	1-216-296-11	SHORT	0	R130	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
L142	1-216-296-11	SHORT	0	R131	1-216-833-11	METAL CHIP	10K 5% 1/16W
L143	1-216-296-11	SHORT	0	R132	1-216-839-11	METAL CHIP	33K 5% 1/16W
L144	1-216-296-11	SHORT	0	R133	1-216-821-11	METAL CHIP	1K 5% 1/16W
L145	1-216-296-11	SHORT	0	R134	1-216-821-11	METAL CHIP	1K 5% 1/16W
L146	1-469-855-21	FERRITE	0uH	R135	1-216-821-11	METAL CHIP	1K 5% 1/16W
L147	1-469-855-21	FERRITE	0uH	R136	1-216-302-00	METAL CHIP	2.7 5% 1/10W
L161	1-500-245-11	FERRITE	0uH	R138	1-216-833-11	METAL CHIP	10K 5% 1/16W
L171	1-500-245-11	FERRITE	0uH	R150	1-216-833-11	METAL CHIP	10K 5% 1/16W
L180	1-469-855-21	FERRITE	0uH	R151	1-216-833-11	METAL CHIP	10K 5% 1/16W
L181	1-469-855-21	FERRITE	0uH	R153	1-216-833-11	METAL CHIP	10K 5% 1/16W
L182	1-500-245-11	FERRITE	0uH	R155	1-216-864-11	METAL CHIP	0 5% 1/16W
L183	1-216-296-11	SHORT	0	R156	1-216-864-11	METAL CHIP	0 5% 1/16W
L184	1-216-296-11	SHORT	0	R158	1-216-809-11	METAL CHIP	100 5% 1/16W
< TRANSISTOR >				R162	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q101	8-729-403-35	TRANSISTOR	UN5113-TX	R167	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q121	8-729-403-35	TRANSISTOR	UN5113-TX	R168	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q122	8-729-101-07	TRANSISTOR	2SB798-T1DK	R169	1-216-855-11	METAL CHIP	680K 5% 1/16W
Q131	8-729-026-53	TRANSISTOR	2SA1576A-T106-QR	R170	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
Q132	8-729-903-10	TRANSISTOR	FMW1-T-148	R171	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q133	8-729-402-93	TRANSISTOR	UN5214-TX	R173	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q134	8-729-402-93	TRANSISTOR	UN5214-TX	R174	1-216-811-11	METAL CHIP	150 5% 1/16W
Q181	8-729-018-75	TRANSISTOR	2SJ278MYTR	R177	1-216-805-11	METAL CHIP	47 5% 1/16W
Q182	8-729-017-65	TRANSISTOR	2SK1764KYTR	R179	1-216-295-00	SHORT	0
< RESISTOR >				R181	1-216-841-11	METAL CHIP	47K 5% 1/16W
R101	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R182	1-216-841-11	METAL CHIP	47K 5% 1/16W
R102	1-216-853-11	METAL CHIP	470K 5% 1/16W	R183	1-216-841-11	METAL CHIP	47K 5% 1/16W
R103	1-216-863-11	RES-CHIP	3.3M 5% 1/16W	R184	1-220-942-11	METAL CHIP	3.3 1% 1/4W
R104	1-216-853-11	METAL CHIP	470K 5% 1/16W	R185	1-220-942-11	METAL CHIP	3.3 1% 1/4W
R105	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R195	1-216-833-11	METAL CHIP	10K 5% 1/16W
				R196	1-216-833-11	METAL CHIP	10K 5% 1/16W
				R197	1-216-833-11	METAL CHIP	10K 5% 1/16W
				R218	1-216-864-11	METAL CHIP	0 5% 1/16W

# HCD-CP500MD



Ref. No.	Part No.	Description	Remarks
< SWITCH >			
S101	1-762-596-21	SWITCH, PUSH (1 KEY)(LIMIT IN)	
S103	1-771-956-21	SWITCH, PUSH (1 KEY)(OUT)	
S104	1-771-955-21	SWITCH, PUSH (1 KEY)(PLAY)	
S105	1-771-955-21	SWITCH, PUSH (1 KEY)(REC)	
< VIBRATOR >			
X171	1-781-569-21	OSCILLATOR, CRYSTAL (90MHz)	
*****			
A-4476-973-A CD BOARD, COMPLETE			
*****			
< CAPACITOR >			
C101	1-164-315-11	CERAMIC CHIP 470PF	5.00% 50V
C102	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V
C103	1-164-315-11	CERAMIC CHIP 470PF	5.00% 50V
C104	1-162-967-11	CERAMIC CHIP 0.0033uF	10% 50V
C107	1-162-921-11	CERAMIC CHIP 33PF	5% 50V
C108	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C109	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C110	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V
C111	1-126-204-11	ELECT CHIP 47uF	20% 16V
C112	1-126-204-11	ELECT CHIP 47uF	20% 16V
C113	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C114	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C115	1-126-204-11	ELECT CHIP 47uF	20% 16V
C117	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C118	1-115-156-11	CERAMIC CHIP 1uF	10V
C119	1-115-156-11	CERAMIC CHIP 1uF	10V
C120	1-126-204-11	ELECT CHIP 47uF	20% 16V
C151	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V
C162	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C201	1-126-204-11	ELECT CHIP 47uF	20% 16V
C202	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C203	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V
C204	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V
C205	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C209	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C211	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V
C212	1-162-965-11	CERAMIC CHIP 0.0015uF	10% 50V
C213	1-162-967-11	CERAMIC CHIP 0.0033uF	10% 50V
C215	1-117-863-11	CERAMIC CHIP 0.47uF	10.00% 6.3V
C216	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C217	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C221	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C222	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C224	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C227	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C228	1-115-156-11	CERAMIC CHIP 1uF	10V
C229	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C230	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C231	1-126-206-11	ELECT CHIP 100uF	20% 6.3V
C234	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
C235	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
C236	1-117-863-11	CERAMIC CHIP 0.47uF	10.00% 6.3V
C237	1-115-412-11	CERAMIC CHIP 680PF	5.00% 25V
C238	1-115-412-11	CERAMIC CHIP 680PF	5.00% 25V

Ref. No.	Part No.	Description	Remarks
C239	1-115-412-11	CERAMIC CHIP 680PF	5.00% 25V
C240	1-115-412-11	CERAMIC CHIP 680PF	5.00% 25V
C241	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C242	1-126-204-11	ELECT CHIP 47uF	20% 16V
C243	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C244	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C245	1-126-204-11	ELECT CHIP 47uF	20% 16V
C247	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C248	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C249	1-164-360-11	CERAMIC CHIP 0.1uF	16V
< CONNECTOR >			
CN101	1-784-873-21	CONNECTOR, FFC (LIF (NON-ZIF)) 22P	
CN102	1-794-424-11	CONNECTOR, FCC/FPC 16P	
< DIODE >			
D101	8-719-056-77	DIODE UDZ-TE-17-3.9B	
< FERRITE BEAD >			
FB101	1-500-445-21	FERRITE	0uH
< IC >			
IC101	8-752-408-73	IC CXD3068Q	
IC103	8-752-089-73	IC CXA2581N	
IC702	8-759-640-22	IC BA5982FM	
< COIL >			
L107	1-500-445-21	FERRITE	0uH
< TRANSISTOR >			
Q101	8-729-049-31	TRANSISTOR	2SB710A-RTX
Q102	8-759-068-54	TRANSISTOR	KRA102S
Q103	8-729-920-85	TRANSISTOR	2SD1664-T100-QR
< RESISTOR >			
R102	1-216-835-11	METAL CHIP	15K 5% 1/16W
R103	1-216-845-11	METAL CHIP	100K 5% 1/16W
R104	1-216-835-11	METAL CHIP	15K 5% 1/16W
R105	1-216-821-11	METAL CHIP	1K 5% 1/16W
R109	1-216-846-11	METAL CHIP	120K 5% 1/16W
R111	1-216-846-11	METAL CHIP	120K 5% 1/16W
R113	1-216-826-11	METAL CHIP	2.7K 5% 1/16W
R114	1-218-745-11	RES-CHIP	160K 5% 1/16W
R115	1-216-839-11	METAL CHIP	33K 5% 1/16W
R118	1-216-833-11	METAL CHIP	10K 5% 1/16W
R120	1-216-846-11	METAL CHIP	120K 5% 1/16W
R122	1-216-845-11	METAL CHIP	100K 5% 1/16W
R123	1-216-797-11	METAL CHIP	10 5% 1/16W
R124	1-216-798-11	RES-CHIP	12 5% 1/16W
R125	1-216-839-11	METAL CHIP	33K 5% 1/16W
R126	1-216-839-11	METAL CHIP	33K 5% 1/16W
R151	1-216-845-11	METAL CHIP	100K 5% 1/16W
R152	1-216-833-11	METAL CHIP	10K 5% 1/16W
R201	1-216-839-11	METAL CHIP	33K 5% 1/16W
R202	1-216-833-11	METAL CHIP	10K 5% 1/16W
R203	1-216-845-11	METAL CHIP	100K 5% 1/16W

CD

CONTROL

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R204	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	C843	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
R205	1-216-821-11	METAL CHIP	1K 5% 1/16W	C844	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
R206	1-216-833-11	METAL CHIP	10K 5% 1/16W			< CONNECTOR >	
R207	1-216-857-11	METAL CHIP	1M 5% 1/16W				
R212	1-216-813-11	METAL CHIP	220 5% 1/16W	CN801	1-794-470-11	CONNECTOR, FFC/FPC 25P	
R213	1-216-864-11	METAL CHIP	0 5% 1/16W			< DIODE >	
R214	1-216-864-11	METAL CHIP	0 5% 1/16W				
R215	1-216-864-11	METAL CHIP	0 5% 1/16W	D801	8-719-085-55	DIODE SY3318-V-L (BACK LIGHT)	
R216	1-216-813-11	METAL CHIP	220 5% 1/16W	D802	8-719-085-55	DIODE SY3318-V-L (BACK LIGHT)	
R217	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	D803	8-719-085-55	DIODE SY3318-V-L (BACK LIGHT)	
R218	1-216-821-11	METAL CHIP	1K 5% 1/16W	D804	8-719-085-55	DIODE SY3318-V-L (BACK LIGHT)	
R219	1-216-821-11	METAL CHIP	1K 5% 1/16W	D810	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)	
R221	1-216-813-11	METAL CHIP	220 5% 1/16W				
R226	1-216-809-11	METAL CHIP	100 5% 1/16W	D821	8-719-074-42	DIODE SLR325VR-T31 (STAND BY)	
R227	1-216-845-11	METAL CHIP	100K 5% 1/16W	D822	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)	
R228	1-216-853-11	METAL CHIP	470K 5% 1/16W	D823	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)	
R229	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	D824	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)	
R230	1-216-789-11	METAL CHIP	2.2 5% 1/16W	D825	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)	
R240	1-216-837-11	METAL CHIP	22K 5% 1/16W				
R241	1-216-837-11	METAL CHIP	22K 5% 1/16W	D826	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)	
R242	1-216-837-11	METAL CHIP	22K 5% 1/16W	D827	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)	
R243	1-216-837-11	METAL CHIP	22K 5% 1/16W	D828	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)	
R244	1-218-344-11	RES-CHIP	7.5K 5% 1/16W			< IC >	
R245	1-218-344-11	RES-CHIP	7.5K 5% 1/16W	IC801	8-759-827-68	IC NJL62H400A-1	
R246	1-218-344-11	RES-CHIP	7.5K 5% 1/16W			< CONDUCTOR >	
R247	1-218-344-11	RES-CHIP	7.5K 5% 1/16W	JR803	1-216-864-11	METAL CHIP 0 5% 1/16W	
R248	1-218-332-11	RES-CHIP	130K 5% 1/16W	JR804	1-216-864-11	METAL CHIP 0 5% 1/16W	
R249	1-216-845-11	METAL CHIP	100K 5% 1/16W	JR805	1-216-864-11	METAL CHIP 0 5% 1/16W	
R250	1-218-344-11	RES-CHIP	7.5K 5% 1/16W	JR806	1-216-864-11	METAL CHIP 0 5% 1/16W	
R251	1-216-847-11	METAL CHIP	150K 5% 1/16W	JR807	1-216-864-11	METAL CHIP 0 5% 1/16W	
R252	1-218-344-11	RES-CHIP	7.5K 5% 1/16W	JR810	1-216-864-11	METAL CHIP 0 5% 1/16W	
R253	1-216-837-11	METAL CHIP	22K 5% 1/16W			< LIQUID CRYSTAL DISPLAY >	
R254	1-216-837-11	METAL CHIP	22K 5% 1/16W				
		< NETWORK >		LCD801	1-804-393-11	DISPLAY PANEL, LIQUID CRYSTAL	
RN201	1-233-576-11	RES, CHIP NETWORK 100				< TRANSISTOR >	
RN202	1-233-576-11	RES, CHIP NETWORK 100					
		< VARIABLE RESISTOR >		Q801	8-729-900-53	TRANSISTOR DTC114EKA-T146	
				Q803	8-729-900-53	TRANSISTOR DTC114EKA-T146	
RV101	1-223-227-21	RES, CARBON ADJ VAR 47K		Q804	8-729-900-53	TRANSISTOR DTC114EKA-T146	
		< SWITCH >		Q805	8-729-900-53	TRANSISTOR DTC114EKA-T146	
				Q806	8-729-900-53	TRANSISTOR DTC114EKA-T146	
S101	1-771-853-11	SWITCH, DETECTION (LIMIT IN)		Q807	8-729-900-53	TRANSISTOR DTC114EKA-T146	
*****				Q808	8-729-900-53	TRANSISTOR DTC114EKA-T146	
A-2056-914-A	CONTROL BOARD, COMPLETE (including CD-PRISM board, HEAD PHONE board, MD-INDICATE board and OPTICAL board)			Q809	8-729-900-53	TRANSISTOR DTC114EKA-T146	
	*****					< RESISTOR >	
4-217-319-21	PLATE, LCD LIGHT			R801	1-216-819-11	METAL CHIP 680 5% 1/16W	
4-234-552-01	HOLDER (LCD)			R802	1-216-820-11	METAL CHIP 820 5% 1/16W	
4-234-566-01	LCD SHEET			R803	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
4-235-892-01	SHEET (LCD.HOLDER)			R804	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
4-235-893-01	SHEET, LCD (S)			R805	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
		< CAPACITOR >		R808	1-216-819-11	METAL CHIP 680 5% 1/16W	
C841	1-124-259-11	ELECT	4.7uF 20.00% 16V	R809	1-216-820-11	METAL CHIP 820 5% 1/16W	
C842	1-107-826-11	CERAMIC CHIP	0.1uF 10.00% 16V	R810	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
				R811	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
				R812	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	

# HCD-CP500MD

CONTROL	CD-PRISM	HEAD PHONE	MD-INDICATE
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Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R813	1-216-831-11	METAL CHIP	6.8K 5% 1/16W	S820	1-571-760-11	SWITCH, KEY BOARD (II (TAPE))	
R815	1-216-819-11	METAL CHIP	680 5% 1/16W	S821	1-571-760-11	SWITCH, KEY BOARD (■ (TAPE))	
R816	1-216-820-11	METAL CHIP	820 5% 1/16W	S822	1-571-760-11	SWITCH, KEY BOARD (◀▶ (TAPE))	
R817	1-216-822-11	METAL CHIP	1.2K 5% 1/16W	S823	1-571-760-11	SWITCH, KEY BOARD (● (TAPE))	
R818	1-216-824-11	METAL CHIP	1.8K 5% 1/16W				
R819	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	S824	1-571-760-11	SWITCH, KEY BOARD (I◀◀)	
R820	1-216-831-11	METAL CHIP	6.8K 5% 1/16W	S825	1-571-760-11	SWITCH, KEY BOARD (I/⏻)	
R821	1-216-836-11	METAL CHIP	18K 5% 1/16W				
R822	1-216-833-11	METAL CHIP	10K 5% 1/16W			CD-PRISM BOARD	
R833	1-216-829-11	METAL CHIP	4.7K 5% 1/16W			*****	
R834	1-216-829-11	METAL CHIP	4.7K 5% 1/16W			< CONNECTOR >	
R835	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	* CN808	1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P	
R836	1-216-829-11	METAL CHIP	4.7K 5% 1/16W			< DIODE >	
R841	1-216-809-11	METAL CHIP	100 5% 1/16W	D811	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)	
R842	1-216-845-11	METAL CHIP	100K 5% 1/16W	D812	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)	
R843	1-216-845-11	METAL CHIP	100K 5% 1/16W				
R845	1-216-817-11	METAL CHIP	470 5% 1/16W			HEAD PHONE BOARD	
R846	1-216-817-11	METAL CHIP	470 5% 1/16W			*****	
R847	1-216-819-11	METAL CHIP	680 5% 1/16W			< CAPACITOR >	
R848	1-216-819-11	METAL CHIP	680 5% 1/16W	C132	1-124-584-00	ELECT 100uF 20% 10V	
R861	1-216-845-11	METAL CHIP	100K 5% 1/16W	C135	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
R862	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	C232	1-124-584-00	ELECT 100uF 20% 10V	
R863	1-216-819-11	METAL CHIP	680 5% 1/16W	C235	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
R864	1-216-817-11	METAL CHIP	470 5% 1/16W			< FERRITE BEAD >	
R865	1-216-817-11	METAL CHIP	470 5% 1/16W				
R868	1-216-819-11	METAL CHIP	680 5% 1/16W	FB101	1-469-144-21	FERRITE 0uH	
R869	1-216-819-11	METAL CHIP	680 5% 1/16W	FB201	1-469-144-21	FERRITE 0uH	
R880	1-216-845-11	METAL CHIP	100K 5% 1/16W	FB301	1-469-144-21	FERRITE 0uH	
R881	1-216-845-11	METAL CHIP	100K 5% 1/16W			< JACK >	
R882	1-216-845-11	METAL CHIP	100K 5% 1/16W	J301	1-794-453-11	JACK (PHONES)	
R883	1-216-845-11	METAL CHIP	100K 5% 1/16W			< COIL >	
R891	1-216-817-11	METAL CHIP	470 5% 1/16W	L101	1-412-006-31	INDUCTOR 10uH	
R892	1-216-817-11	METAL CHIP	470 5% 1/16W	L201	1-412-006-31	INDUCTOR 10uH	
R893	1-216-817-11	METAL CHIP	470 5% 1/16W			< TRANSISTOR >	
R894	1-216-817-11	METAL CHIP	470 5% 1/16W	Q132	8-729-920-31	TRANSISTOR DTC343TK-T-146	
		< VARIABLE RESISTOR >		Q232	8-729-920-31	TRANSISTOR DTC343TK-T-146	
RV801	1-476-730-11	ENCODER, ROTARY (VOLUME)				< RESISTOR >	
RV802	1-418-859-11	ENCODER, ROTARY (TREBLE)					
RV803	1-418-859-11	ENCODER, ROTARY (BASS)		R128	1-216-801-11	METAL CHIP 22 5% 1/16W	
		< SWITCH >		R139	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
S801	1-571-760-11	SWITCH, KEY BOARD (● (MD))		R228	1-216-801-11	METAL CHIP 22 5% 1/16W	
S802	1-571-760-11	SWITCH, KEY BOARD (▶II (MD))		R239	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
S803	1-571-760-11	SWITCH, KEY BOARD (▲ (MD))					
S804	1-571-760-11	SWITCH, KEY BOARD (▲ (CD))				MD-INDICATE BOARD	
S805	1-571-760-11	SWITCH, KEY BOARD (▶II (CD))				*****	
S806	1-571-760-11	SWITCH, KEY BOARD (■ (CD))				< CONNECTOR >	
S809	1-571-760-11	SWITCH, KEY BOARD (DSG)		* CN806	1-506-985-11	PIN, CONNECTOR (PC BOARD) 3P	
S810	1-571-760-11	SWITCH, KEY BOARD (ENTER/START)					
S811	1-571-760-11	SWITCH, KEY BOARD (SYNCHRO)					
S812	1-571-760-11	SWITCH, KEY BOARD (REC MODE)					
S813	1-571-760-11	SWITCH, KEY BOARD (REPEAT)					
S814	1-571-760-11	SWITCH, KEY BOARD (PLAY MODE/DIRECTION)					
S815	1-571-760-11	SWITCH, KEY BOARD (FUNCTION)					
S817	1-571-760-11	SWITCH, KEY BOARD (■ (MD))					
S818	1-571-760-11	SWITCH, KEY BOARD (BAND)					
S819	1-571-760-11	SWITCH, KEY BOARD (▶▶I)					



## MD-INDICATE

## OPTICAL

## DIGITAL

Ref. No.	Part No.	Description	Remarks		
< DIODE >					
D813	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)			
D814	8-719-084-70	DIODE SY3318-V-S1-T (BACK LIGHT)			
< TRANSISTOR >					
Q802	8-729-900-53	TRANSISTOR	DTC114EKA-T146		
< RESISTOR >					
R885	1-216-817-11	METAL CHIP	470	5%	1/16W
R886	1-216-817-11	METAL CHIP	470	5%	1/16W
OPTICAL BOARD					
*****					
< CAPACITOR >					
C550	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C551	1-104-665-11	ELECT	100uF	20.00%	10V
C553	1-104-665-11	ELECT	100uF	20.00%	10V
C554	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
< CONNECTOR >					
* CN551	1-506-989-11	PIN, CONNECTOR (PC BOARD) 7P			
< FERRITE BEAD >					
FB551	1-469-144-21	FERRITE	0uH		
< IC >					
IC551	8-749-019-61	IC JFJ4000-01SY (DIGITAL OPTICAL IN)			
< CONNECTOR >					
J302	1-774-136-11	CONNECTOR, ROUND TYPE 6P (PC LINK)			
< TRANSISTOR >					
Q301	8-729-048-96	TRANSISTOR	2SK1825		
Q302	8-729-048-96	TRANSISTOR	2SK1825		
< RESISTOR >					
R304	1-216-797-11	METAL CHIP	10	5%	1/16W
R305	1-216-797-11	METAL CHIP	10	5%	1/16W
R306	1-216-845-11	METAL CHIP	100K	5%	1/16W
R310	1-216-835-11	METAL CHIP	15K	5%	1/16W
R312	1-216-833-11	METAL CHIP	10K	5%	1/16W
R336	1-216-864-11	METAL CHIP	0	5%	1/16W
R337	1-216-864-11	METAL CHIP	0	5%	1/16W
*****					
A-4725-834-A	DIGITAL BOARD, COMPLETE				
*****					
< CAPACITOR >					
C1001	1-126-934-11	ELECT	220uF	20.00%	10V
C1002	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1003	1-126-933-11	ELECT	100uF	20.00%	16V
C1004	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1005	1-126-933-11	ELECT	100uF	20.00%	16V

Ref. No.	Part No.	Description	Remarks		
C1006	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1007	1-126-933-11	ELECT	100uF	20.00%	16V
C1008	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1009	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1010	1-126-933-11	ELECT	100uF	20.00%	16V
C1011	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1012	1-126-933-11	ELECT	100uF	20.00%	16V
C1013	1-126-933-11	ELECT	100uF	20.00%	16V
C1014	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1015	1-126-933-11	ELECT	100uF	20.00%	16V
C1016	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1017	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1018	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1019	1-163-009-11	CERAMIC CHIP	0.001uF	10.00%	50V
C1020	1-163-009-11	CERAMIC CHIP	0.001uF	10.00%	50V
C1021	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1022	1-126-933-11	ELECT	100uF	20.00%	16V
C1023	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C1024	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1025	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1026	1-126-933-11	ELECT	100uF	20.00%	16V
C1027	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C1034	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C1035	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1037	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C1038	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C1039	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C1040	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C1041	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C1042	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C1043	1-162-918-11	CERAMIC CHIP	18PF	5.00%	50V
C1044	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1045	1-126-933-11	ELECT	100uF	20.00%	16V
C1046	1-136-153-00	FILM	0.01uF	5%	50V
C1047	1-136-153-00	FILM	0.01uF	5%	50V
C1048	1-126-933-11	ELECT	100uF	20.00%	16V
C1049	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1050	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1051	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1052	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1118	1-126-935-11	ELECT	470uF	20.00%	16V
C2003	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C2004	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C2005	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
< CONNECTOR >					
CN1001	1-794-470-11	CONNECTOR, FFC/FPC 25P			
CN1003	1-779-295-11	CONNECTOR, FFC (LIF (NON-ZIF)) 27P			
CN1004	1-779-285-11	CONNECTOR, FFC (LIF (NON-ZIF)) 17P			
< IC >					
IC1001	8-759-828-80	IC M30805MG-205GP			
IC1004	8-759-988-58	IC BA6209N			
IC1005	8-759-675-78	IC UDA1360TS/N1.118			
IC1006	8-759-675-77	IC UDA1350AH			
< COIL >					
L1001	1-412-533-21	INDUCTOR	47uH		

## HCD-CP500MD

Ver. 1.3

DIGITAL

MAIN

Ref. No.	Part No.	Description	Remarks			
< TRANSISTOR >						
Q1001	1-801-806-11	TRANSISTOR	DTC144EK-T146			
Q1002	8-729-602-36	TRANSISTOR	2SA1602TP-1EF			
Q1003	8-729-602-36	TRANSISTOR	2SA1602TP-1EF			
Q1004	8-729-403-35	TRANSISTOR	UN5113-TX			
Q2001	8-729-602-36	TRANSISTOR	2SA1602TP-1EF			
Q2002	8-729-038-67	TRANSISTOR	KRC102S			
< RESISTOR >						
R1001	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	
R1002	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	
R1005	1-216-025-11	RES-CHIP	100	5%	1/10W	
R1006	1-216-025-11	RES-CHIP	100	5%	1/10W	
R1007	1-216-025-11	RES-CHIP	100	5%	1/10W	
R1010	1-216-025-11	RES-CHIP	100	5%	1/10W	
R1011	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1012	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1013	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1014	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1015	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1016	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1017	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1018	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1024	1-216-041-00	METAL CHIP	470	5%	1/10W	
R1029	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1030	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1033	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R1034	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1035	1-216-073-00	RES-CHIP	10K	5%	1/10W	
R1036	1-216-295-00	SHORT	0			
R1057	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1058	1-216-025-11	RES-CHIP	100	5%	1/10W	
R1059	1-216-025-11	RES-CHIP	100	5%	1/10W	
R1060	1-216-025-11	RES-CHIP	100	5%	1/10W	
R1067	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1068	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1073	1-216-073-00	RES-CHIP	10K	5%	1/10W	
R1075	1-216-025-11	RES-CHIP	100	5%	1/10W	
R1076	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1077	1-216-295-00	SHORT	0			
R1078	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1080	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1081	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1082	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1085	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1087	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R1088	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R1090	1-216-817-11	METAL CHIP	470	5%	1/16W	
R1091	1-216-813-11	METAL CHIP	220	5%	1/16W	
R1092	1-216-813-11	METAL CHIP	220	5%	1/16W	
R1093	1-216-033-00	METAL CHIP	220	5%	1/10W	
R1094	1-216-813-11	METAL CHIP	220	5%	1/16W	
R1095	1-216-039-00	METAL CHIP	390	5%	1/10W	
R2002	1-216-296-11	SHORT	0			
R2005	1-216-864-11	METAL CHIP	0	5%	1/16W	
R2006	1-216-809-11	METAL CHIP	100	5%	1/16W	
R2007	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2008	1-216-809-11	METAL CHIP	100	5%	1/16W	

Ref. No.	Part No.	Description	Remarks			
< VIBRATOR >						
X1001	1-579-175-11	VIBRATOR, CERAMIC (10MHz)				
*****						
	1-676-599-11	LOADING BOARD				
*****						
< CONNECTOR >						
* CN1	1-568-943-11	PIN, CONNECTOR 5P				
< SWITCH >						
S1	1-771-799-11	SWITCH, LEVER (SLIDE)(DISC TRAY OPEN DET)				
*****						
	A-4725-837-A	MAIN BOARD, COMPLETE (AEP, UK)				
	A-4725-849-A	MAIN BOARD, COMPLETE (AUS)				
	A-4726-237-A	MAIN BOARD, COMPLETE (CH)				
	A-4727-454-A	MAIN BOARD, COMPLETE (HK)				
	A-4727-455-A	MAIN BOARD, COMPLETE (E51)				
*****						
	4-217-354-11	BUSHING, INSULATING				
	7-685-546-14	SCREW +BTP 3X8 TYPE2 N-S				
	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S				
112	A-4303-624-A	TUNER UNIT (AEP, UK, AUS, CH)				
112	A-4303-626-A	TUNER UNIT (E51, HK)				
< CAPACITOR >						
C101	1-126-964-11	ELECT	10uF	20.00%	50V	
					(EXCEPT AEP, UK, E51, HK)	
C101	1-126-963-11	ELECT	4.7uF	20.00%	50V	
					(AEP, UK, E51, HK)	
C102	1-126-964-11	ELECT	10uF	20.00%	50V	
					(EXCEPT AEP, UK, E51, HK)	
C102	1-126-963-11	ELECT	4.7uF	20.00%	50V	
					(AEP, UK, E51, HK)	
C103	1-126-964-11	ELECT	10uF	20.00%	50V	
					(EXCEPT AEP, UK, E51, HK)	
C103	1-126-963-11	ELECT	4.7uF	20.00%	50V	
					(AEP, UK, E51, HK)	
C104	1-126-964-11	ELECT	10uF	20.00%	50V	
					(EXCEPT AEP, UK, E51, HK)	
C104	1-126-963-11	ELECT	4.7uF	20.00%	50V	
					(AEP, UK, E51, HK)	
C105	1-126-964-11	ELECT	10uF	20.00%	50V	
					(EXCEPT AEP, UK, E51, HK)	
C105	1-126-963-11	ELECT	4.7uF	20.00%	50V	
					(AEP, UK, E51, HK)	
C106	1-126-964-11	ELECT	10uF	20.00%	50V	
					(EXCEPT AEP, UK, E51, HK)	
C106	1-104-664-11	ELECT	47uF	20.00%	16V	
					(AEP, UK)	
C106	1-126-963-11	ELECT	4.7uF	20.00%	50V	
					(E51, HK)	
C107	1-126-964-11	ELECT	10uF	20.00%	50V	
					(EXCEPT AEP, UK, E51, HK)	
C107	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V	
					(AEP, UK)	
C107	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V	
					(E51, HK)	
C108	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V	
C109	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	



Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
C110	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT AEP, UK, E51, HK)	C206	1-104-664-11	ELECT	47uF	20.00%	16V (AEP, UK)
C110	1-126-963-11	ELECT	4.7uF	20.00%	50V (AEP, UK, E51, HK)	C206	1-126-963-11	ELECT	4.7uF	20.00%	50V (E51, HK)
C111	1-164-245-11	CERAMIC CHIP	0.015uF	10.00%	25V	C207	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT AEP, UK, E51, HK)
C112	1-164-245-11	CERAMIC CHIP	0.015uF	10.00%	25V	C207	1-109-982-11	CERAMIC CHIP	1uF	10.00%	10V (AEP, UK)
C113	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V (EXCEPT AEP, UK, E51, HK)	C207	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V (E51, HK)
C113	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V (AEP, UK, E51, HK)	C208	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V
C114	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C209	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C115	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V (EXCEPT AEP, UK, E51, HK)	C210	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT AEP, UK, E51, HK)
C115	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V (AEP, UK, E51, HK)	C210	1-126-963-11	ELECT	4.7uF	20.00%	50V (AEP, UK, E51, HK)
C116	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	C211	1-164-245-11	CERAMIC CHIP	0.015uF	10.00%	25V
C117	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C212	1-164-245-11	CERAMIC CHIP	0.015uF	10.00%	25V
C118	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V (EXCEPT AEP, UK, E51, HK)	C213	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C118	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V (AEP, UK, E51, HK)	C214	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C120	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V (EXCEPT AEP, UK, E51, HK)	C215	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V (EXCEPT AEP, UK, E51, HK)
C120	1-164-245-11	CERAMIC CHIP	0.015uF	10.00%	25V (AEP, UK, E51, HK)	C215	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V (AEP, UK, E51, HK)
C121	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	C216	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V (EXCEPT AEP, UK, E51, HK)
C123	1-126-964-11	ELECT	10uF	20.00%	50V	C216	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V (AEP, UK, E51, HK)
C124	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (EXCEPT AEP, UK, E51, HK)	C217	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C124	1-162-962-11	CERAMIC CHIP	470PF	10%	50V (AEP, UK, E51, HK)	C218	1-107-826-11	CERAMIC CHIP	0.1uF	10.00%	16V (EXCEPT AEP, UK, E51, HK)
C125	1-126-965-11	ELECT	22uF	20.00%	50V	C218	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V (AEP, UK, E51, HK)
C127	1-130-495-00	MYLAR	0.1uF	5%	50V	C220	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V (EXCEPT AEP, UK, E51, HK)
C128	1-130-495-00	MYLAR	0.1uF	5%	50V	C220	1-164-245-11	CERAMIC CHIP	0.015uF	10.00%	25V (AEP, UK, E51, HK)
C130	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V	C221	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C133	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V	C223	1-126-964-11	ELECT	10uF	20.00%	50V
C140	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	C224	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (EXCEPT AEP, UK, E51, HK)
C150	1-104-664-11	ELECT	47uF	20.00%	16V	C224	1-162-962-11	CERAMIC CHIP	470PF	10%	50V (AEP, UK, E51, HK)
C201	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT AEP, UK, E51, HK)	C225	1-126-965-11	ELECT	22uF	20.00%	50V
C201	1-126-963-11	ELECT	4.7uF	20.00%	50V (AEP, UK, E51, HK)	C227	1-130-495-00	MYLAR	0.1uF	5%	50V
C202	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT AEP, UK, E51, HK)	C228	1-130-495-00	MYLAR	0.1uF	5%	50V
C202	1-126-963-11	ELECT	4.7uF	20.00%	50V (AEP, UK, E51, HK)	C230	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V
C203	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT AEP, UK, E51, HK)	C233	1-115-467-11	CERAMIC CHIP	0.22uF	10.00%	10V
C203	1-126-963-11	ELECT	4.7uF	20.00%	50V (AEP, UK, E51, HK)	C240	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C204	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT AEP, UK, E51, HK)	C250	1-104-664-11	ELECT	47uF	20.00%	16V
C204	1-126-963-11	ELECT	4.7uF	20.00%	50V (AEP, UK, E51, HK)	C300	1-126-961-11	ELECT	2.2uF	20.00%	50V (EXCEPT AEP, UK)
C205	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT AEP, UK, E51, HK)	C300	1-126-964-11	ELECT	10uF	20.00%	50V (AEP, UK)
C205	1-126-963-11	ELECT	4.7uF	20.00%	50V (AEP, UK, E51, HK)	C301	1-104-664-11	ELECT	47uF	20.00%	16V (EXCEPT AEP, UK, E51, HK)
C206	1-126-964-11	ELECT	10uF	20.00%	50V (EXCEPT AEP, UK, E51, HK)	C301	1-126-964-11	ELECT	10uF	20.00%	50V (AEP, UK, E51, HK)
						C302	1-126-941-11	ELECT	470uF	20.00%	16V
						C304	1-104-665-11	ELECT	100uF	20.00%	16V
						C305	1-104-665-11	ELECT	100uF	20.00%	16V (EXCEPT AEP, UK)

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## MAIN

Ref. No.	Part No.	Description	Remarks		Ref. No.	Part No.	Description	Remarks	
C305	1-104-664-11	ELECT	47uF	20.00% 16V (AEP, UK)	C350	1-124-903-11	ELECT	1uF	20.00% 50V
C306	1-126-964-11	ELECT	10uF	20.00% 50V (EXCEPT AEP, UK, E51, HK)	C351	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V
C306	1-126-963-11	ELECT	4.7uF	20.00% 50V (AEP, UK, E51, HK)	C352	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V
C307	1-104-665-11	ELECT	100uF	20.00% 16V (EXCEPT AEP, UK, E51, HK)	C353	1-104-664-11	ELECT	47uF	20.00% 16V
C307	1-126-935-11	ELECT	470uF	20.00% 10V (AEP, UK, E51, HK)	C354	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V
C308	1-126-961-11	ELECT	2.2uF	20.00% 50V	C355	1-126-961-11	ELECT	2.2uF	20.00% 50V (AEP, UK)
C310	1-104-665-11	ELECT	100uF	20.00% 16V	C356	1-126-964-11	ELECT	10uF	20.00% 50V (AEP, UK)
C311	1-124-903-11	ELECT	1uF	20.00% 50V (EXCEPT E51, HK)	C357	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V
C311	1-104-665-11	ELECT	100uF	20.00% 16V (E51, HK)	C358	1-164-739-11	CERAMIC CHIP	560PF	5.00% 50V (AEP, UK)
C312	1-104-665-11	ELECT	100uF	20.00% 16V	C360	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V (AEP, UK)
C313	1-126-965-11	ELECT	22uF	20.00% 50V	C361	1-162-921-11	CERAMIC CHIP	33PF	5% 50V (AEP, UK)
C314	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V	C361	1-164-185-11	CERAMIC CHIP	13PF	5.00% 50V (AEP, UK)
C316	1-126-955-11	ELECT	4700uF	20.00% 35V	C362	1-162-921-11	CERAMIC CHIP	33PF	5% 50V (AEP, UK)
C317	1-126-955-11	ELECT	4700uF	20.00% 35V	C362	1-164-185-11	CERAMIC CHIP	13PF	5.00% 50V (AEP, UK)
C318	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V	C363	1-104-665-11	ELECT	100uF	20.00% 16V
C319	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V	C364	1-162-961-11	CERAMIC CHIP	330PF	10% 50V (AEP, UK)
C320	1-126-942-61	ELECT	1000uF	20.00% 25V	C365	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V (AEP, UK)
C321	1-126-944-11	ELECT	3300uF	20.00% 25V	C366	1-104-664-11	ELECT	47uF	20.00% 10V (AEP, UK)
C322	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V	C367	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V (AEP, UK)
C323	1-104-665-11	ELECT	100uF	20.00% 16V	C368	1-115-456-21	CAPACITOR	0.22F	5.5V
C324	1-104-665-11	ELECT	100uF	20.00% 16V	C369	1-115-456-21	CAPACITOR	0.22F	5.5V
C325	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V	C373	1-104-665-11	ELECT	100uF	20.00% 25V
C326	1-104-665-11	ELECT	100uF	20.00% 16V	C374	1-104-666-11	ELECT	220uF	20.00% 10V
C327	1-126-964-11	ELECT	10uF	20.00% 50V	C377	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C328	1-126-941-11	ELECT	470uF	20.00% 16V	C378	1-164-315-11	CERAMIC CHIP	470PF	5.00% 50V
C329	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V	C379	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V (AEP, UK)
C330	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V	C379	1-164-315-11	CERAMIC CHIP	470PF	5.00% 50V (EXCEPT AEP, UK)
C331	1-126-767-11	ELECT	1000uF	20.00% 10V	C380	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V (EXCEPT AEP, UK)
C332	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V	C380	1-216-864-11	METAL CHIP	0	5% 1/16W (AEP, UK)
C333	1-104-666-11	ELECT	220uF	20.00% 10V (EXCEPT AEP, UK)	C381	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C333	1-104-665-11	ELECT	100uF	20.00% 16V (AEP, UK)	C383	1-162-302-11	CERAMIC	0.0022uF	30.00% 16V
C335	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V	C390	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C336	1-104-665-11	ELECT	100uF	20.00% 16V	C392	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V (EXCEPT AEP, UK, E51, HK)
C337	1-126-964-11	ELECT	10uF	20.00% 50V	C392	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V (AEP, UK, E51, HK)
C338	1-126-935-11	ELECT	470uF	20.00% 10V	C393	1-165-176-11	CERAMIC CHIP	0.047uF	10.00% 16V
C339	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V	C394	1-125-891-11	CERAMIC CHIP	0.47uF	10.00% 10V
C340	1-162-967-11	CERAMIC CHIP	0.0033uF	10% 50V	C507	1-164-156-21	CETAMIC CHIP	0.1uF	25V
C341	1-104-665-11	ELECT	100uF	20.00% 16V	C509	1-104-665-11	ELECT	100uF	20.00% 16V
C342	1-124-903-11	ELECT	1uF	20.00% 50V	C801	1-164-160-11	CERAMIC CHIP	20PF	5.00% 50V
C343	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V (EXCEPT AEP, UK)	C802	1-162-919-11	CERAMIC CHIP	22PF	5% 50V
C343	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V (AEP, UK)	C803	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V
C344	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V (EXCEPT AEP, UK)	C804	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V
C344	1-162-966-11	CERAMIC CHIP	0.0022uF	10% 50V (AEP, UK)	C805	1-104-665-11	ELECT	100uF	20.00% 16V
C345	1-126-767-11	ELECT	1000uF	20.00% 10V					
C347	1-104-664-11	ELECT	47uF	20.00% 16V					
C348	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V					
C349	1-107-826-11	CERAMIC CHIP	0.1uF	10.00% 16V					

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
< CONNECTOR >				FB320	1-216-864-11	METAL CHIP	0 5% 1/16W
				FB321	1-216-864-11	METAL CHIP	0 5% 1/16W
CN301	1-794-470-11	CONNECTOR, FFC/FPC 25P		FB322	1-410-993-11	INDUCTOR CHIP	1uH
CN302	1-779-290-11	CONNECTOR, FFC (LIF (NON-ZIF)) 22P		FB323	1-216-864-11	METAL CHIP	0 5% 1/16W
* CN303	1-569-366-11	SOCKET, CONNECTOR 18P		FB324	1-216-864-11	METAL CHIP	0 5% 1/16W
* CN304	1-565-650-11	SOCKET, CONNECTOR 25P		FB325	1-216-864-11	METAL CHIP	0 5% 1/16W
* CN306	1-568-954-11	PIN, CONNECTOR 5P		FB326	1-216-864-11	METAL CHIP	0 5% 1/16W
* CN308	1-568-954-11	PIN, CONNECTOR 5P		FB327	1-216-864-11	METAL CHIP	0 5% 1/16W
< DIODE >				< IC >			
D303	8-719-200-82	DIODE 11ES2-TA1B		IC101	8-759-584-38	IC TDA7296	
D304	8-719-050-84	DIODE RB441QT-77		IC201	8-759-584-38	IC TDA7296	
D305	8-719-200-82	DIODE 11ES2-TA1B		IC301	8-759-000-00	IC MC6800P (CH)	
D306	8-719-200-82	DIODE 11ES2-TA1B		IC301	6-700-261-01	IC BD3861FS (EXCEPT CH)	
D307	8-719-200-82	DIODE 11ES2-TA1B		IC302	8-759-359-49	IC NJM3414AV (TE2)	
D308	8-719-991-33	DIODE 1SS133T-77		IC303	8-759-646-54	IC KIA7808API	
D309	8-719-991-33	DIODE 1SS133T-77		IC305	8-759-038-14	IC MC74HC4538N (CH)	
D310	8-719-921-75	DIODE MTZN-T-77-10B		IC305	8-759-686-72	IC uPC29L04J-T (EXCEPT CH)	
D311	8-719-921-63	DIODE MTZJ-T-77-7.5B		IC306	6-800-349-01	IC M30622MGA-A64FP	
D312	8-719-109-89	DIODE MTZJ-T-77-5.6B		IC307	8-759-584-65	IC KA3082	
D313	8-719-921-80	DIODE MTZJ-T-77-11B		IC308	8-759-481-02	IC M62016L	
D314	8-719-200-82	DIODE 11ES2-TA1B		IC309	8-759-560-51	IC BU1924F (AEP, UK)	
D315	8-719-200-82	DIODE 11ES2-TA1B		IC310	8-759-646-53	IC KIA7812API	
D316	8-719-200-82	DIODE 11ES2-TA1B		IC311	8-759-646-54	IC KIA7808API	
D317	8-719-200-82	DIODE 11ES2-TA1B		IC313	8-759-646-54	IC KIA7808API	
D318	8-719-200-82	DIODE 11ES2-TA1B		IC314	8-759-646-52	IC KIA7805API	
D319	8-719-991-33	DIODE 1SS133T-77		IC315	8-759-646-52	IC KIA7805API	
D320	8-719-050-84	DIODE RB441QT-77		IC316	8-759-637-58	IC PST592C-T	
D321	8-719-991-33	DIODE 1SS133T-77		IC503	8-759-548-57	IC SN74LV00ANSR	
D322	8-719-991-33	DIODE 1SS133T-77		< CONDUCTOR/RESISTOR >			
D323	8-719-991-33	DIODE 1SS133T-77		JR101	1-216-864-11	METAL CHIP	0 5% 1/16W
D324	8-719-991-33	DIODE 1SS133T-77		JR201	1-216-864-11	METAL CHIP	0 5% 1/16W
D325	8-719-991-33	DIODE 1SS133T-77		JR301	1-216-864-11	METAL CHIP	0 5% 1/16W
D326	8-719-200-82	DIODE 11ES2-TA1B		JR302	1-216-864-11	METAL CHIP	0 5% 1/16W
D330	8-719-921-40	DIODE MTZJ-T-77-4.7C		JR304	1-216-864-11	METAL CHIP	0 5% 1/16W
D331	8-719-982-11	DIODE MTZJ-T-77-4.3B (AEP, UK)		JR305	1-216-864-11	METAL CHIP	0 5% 1/16W
D332	8-719-991-33	DIODE 1SS133T-77 (AEP, UK)		JR310	1-249-401-11	CARBON	47 5% 1/4W
D336	8-719-921-40	DIODE MTZJ-T-77-4.7C		< COIL >			
< FERRITE BEAD/CONDUCTOR >				L101	1-420-872-00	COIL, AIR-CORE	
FB301	1-414-813-11	FERRITE	0uH	L201	1-420-872-00	COIL, AIR-CORE	
FB302	1-216-864-11	METAL CHIP	0 5% 1/16W	< JACK >			
FB303	1-216-864-11	METAL CHIP	0 5% 1/16W	PJ301	1-815-636-11	JACK, PIN 2P (ANALOG IN)	
FB304	1-414-813-11	FERRITE	0uH	< TRANSISTOR >			
FB306	1-414-813-11	FERRITE	0uH	Q101	8-729-920-31	TRANSISTOR	DTC343TK-T-146
FB307	1-414-813-11	FERRITE	0uH	Q201	8-729-920-31	TRANSISTOR	DTC343TK-T-146
FB308	1-414-813-11	FERRITE	0uH	Q303	8-729-056-23	TRANSISTOR	STC352-OY
FB309	1-414-813-11	FERRITE	0uH	Q304	8-729-056-23	TRANSISTOR	STC352-OY
FB310	1-414-813-11	FERRITE	0uH	Q305	8-729-055-91	TRANSISTOR	SRA2202S
FB311	1-414-813-11	FERRITE	0uH	Q306	8-729-055-94	TRANSISTOR	SRC1202S
FB312	1-414-813-11	FERRITE	0uH	Q307	8-729-055-91	TRANSISTOR	SRA2202S
FB313	1-414-813-11	FERRITE	0uH	Q308	8-729-055-94	TRANSISTOR	SRC1202S
FB314	1-216-864-11	METAL CHIP	0 5% 1/16W	Q309	8-729-019-00	TRANSISTOR	KTC2026
FB315	1-414-813-11	FERRITE	0uH	Q310	8-729-055-91	TRANSISTOR	SRA2202S
FB316	1-414-813-11	FERRITE	0uH				
FB317	1-414-813-11	FERRITE	0uH				
FB318	1-216-864-11	METAL CHIP	0 5% 1/16W				
FB319	1-216-864-11	METAL CHIP	0 5% 1/16W				

## HCD-CP500MD

## MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
Q311	8-729-055-94	TRANSISTOR	SRC1202S	R130	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q312	8-729-019-00	TRANSISTOR	KTC2026	R131	1-249-389-11	CARBON	4.7 5% 1/4W F
Q315	8-729-055-91	TRANSISTOR	SRA2202S	R132	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q316	8-729-055-94	TRANSISTOR	SRC1202S	R133	1-216-830-11	METAL CHIP	5.6K 5% 1/16W (EXCEPT AEP, UK, E51, HK)
Q318	8-729-055-91	TRANSISTOR	SRA2202S				
Q319	8-729-034-51	TRANSISTOR	KTC3875	R133	1-216-833-11	METAL CHIP	10K 5% 1/16W (AEP, UK, E51, HK)
Q320	8-729-202-56	TRANSISTOR	2SA950-Y-TPE2	R134	1-216-829-11	METAL CHIP	4.7K 5% 1/16W (EXCEPT AEP, UK, E51, HK)
Q321	8-729-055-94	TRANSISTOR	SRC1202S	R134	1-216-833-11	METAL CHIP	10K 5% 1/16W (AEP, UK)
Q322	8-729-202-56	TRANSISTOR	2SA950-Y-TPE2	R134	1-218-272-11	RES-CHIP	5.1K 5% 1/16W (E51, HK)
Q323	8-729-055-94	TRANSISTOR	SRC1202S	R135	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
Q329	8-729-120-28	TRANSISTOR	2SC2412K-T-146-QR (AEP, UK)	R136	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q330	8-729-055-91	TRANSISTOR	SRA2202S	R143	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q331	8-729-055-94	TRANSISTOR	SRC1202S	R201	1-216-827-11	METAL CHIP	3.3K 5% 1/16W (EXCEPT AEP, UK, E51, HK)
Q333	8-729-055-94	TRANSISTOR	SRC1202S	R201	1-216-830-11	METAL CHIP	5.6K 5% 1/16W (AEP, UK, E51, HK)
Q335	8-729-037-02	TRANSISTOR	KTA1266Y-AT	R202	1-216-825-11	METAL CHIP	2.2K 5% 1/16W (EXCEPT AEP, UK, E51, HK)
Q337	8-729-055-94	TRANSISTOR	SRC1202S				
Q339	8-729-055-94	TRANSISTOR	SRC1202S				
< RESISTOR >							
R102	1-249-421-11	CARBON	2.2K 5% 1/4W F (EXCEPT AEP, UK, E51, HK)	R202	1-216-837-11	METAL CHIP	22K 5% 1/16W (AEP, UK, E51, HK)
R102	1-216-837-11	METAL CHIP	22K 5% 1/16W (AEP, UK, E51, HK)	R204	1-216-833-11	METAL CHIP	10K 5% 1/16W (EXCEPT AEP, UK, E51, HK)
R104	1-216-833-11	METAL CHIP	10K 5% 1/16W (EXCEPT AEP, UK, E51, HK)	R204	1-216-829-11	METAL CHIP	4.7K 5% 1/16W (AEP, UK, E51, HK)
R104	1-216-829-11	METAL CHIP	4.7K 5% 1/16W (AEP, UK, E51, HK)	R205	1-249-421-11	CARBON	2.2K 5% 1/4W F
R105	1-249-421-11	CARBON	2.2K 5% 1/4W F	R206	1-216-833-11	METAL CHIP	10K 5% 1/16W (EXCEPT AEP, UK, E51, HK)
R106	1-216-833-11	METAL CHIP	10K 5% 1/16W (EXCEPT AEP, UK, E51, HK)	R206	1-216-849-11	METAL CHIP	220K 5% 1/16W (AEP, UK, E51, HK)
R106	1-216-849-11	METAL CHIP	220K 5% 1/16W (AEP, UK, E51, HK)	R207	1-216-830-11	METAL CHIP	5.6K 5% 1/16W
R107	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R208	1-216-821-11	METAL CHIP	1K 5% 1/16W (EXCEPT AEP, UK, E51, HK)
R108	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R208	1-216-837-11	METAL CHIP	22K 5% 1/16W (AEP, UK, E51, HK)
R109	1-249-421-11	CARBON	2.2K 5% 1/4W F	R209	1-249-421-11	CARBON	2.2K 5% 1/4W F
R110	1-216-821-11	METAL CHIP	1K 5% 1/16W (EXCEPT AEP, UK, E51, HK)	R212	1-216-831-11	METAL CHIP	6.8K 5% 1/16W (EXCEPT AEP, UK)
R110	1-216-837-11	METAL CHIP	22K 5% 1/16W (AEP, UK, E51, HK)	R212	1-216-833-11	METAL CHIP	10K 5% 1/16W (AEP, UK)
R112	1-216-831-11	METAL CHIP	6.8K 5% 1/16W (EXCEPT AEP, UK)	R213	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R112	1-216-833-11	METAL CHIP	10K 5% 1/16W (AEP, UK)	R221	1-216-830-11	METAL CHIP	5.6K 5% 1/16W (EXCEPT AEP, UK, E51, HK)
R113	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R221	1-216-833-11	METAL CHIP	10K 5% 1/16W (AEP, UK)
R121	1-216-830-11	METAL CHIP	5.6K 5% 1/16W (EXCEPT AEP, UK, E51, HK)	R221	1-216-832-11	METAL CHIP	8.2K 5% 1/16W (E51, HK)
R121	1-216-833-11	METAL CHIP	10K 5% 1/16W (AEP, UK)	R222	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R121	1-216-832-11	METAL CHIP	8.2K 5% 1/16W (E51, HK)	R223	1-216-835-11	METAL CHIP	15K 5% 1/16W (EXCEPT AEP, UK, E51, HK)
R122	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R223	1-216-829-11	METAL CHIP	4.7K 5% 1/16W (AEP, UK, E51, HK)
R123	1-216-835-11	METAL CHIP	15K 5% 1/16W (AUS, CH)	R226	1-216-821-11	METAL CHIP	1K 5% 1/16W
R123	1-216-829-11	METAL CHIP	4.7K 5% 1/16W (AEP, UK, E51, HK)	R227	1-216-817-11	METAL CHIP	470 5% 1/16W
R126	1-249-417-11	CARBON	1K 5% 1/4W F	R228	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R127	1-216-817-11	METAL CHIP	470 5% 1/16W	R229	1-216-837-11	METAL CHIP	22K 5% 1/16W
R128	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R230	1-216-845-11	METAL CHIP	100K 5% 1/16W
R129	1-216-837-11	METAL CHIP	22K 5% 1/16W	R231	1-249-389-11	CARBON	4.7 5% 1/4W F

Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
R232	1-216-833-11	METAL CHIP	10K	5%	1/16W	R349	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R233	1-216-830-11	METAL CHIP	5.6K	5%	1/16W						(AEP, UK)
			(EXCEPT AEP, UK, E51, HK)			R350	1-216-809-11	METAL CHIP	100	5%	1/16W
R233	1-216-833-11	METAL CHIP	10K	5%	1/16W						(AEP, UK)
			(AEP, UK, E51, HK)			R351	1-216-811-11	METAL CHIP	150	5%	1/16W
R234	1-216-829-11	METAL CHIP	4.7K	5%	1/16W						(AEP, UK)
			(EXCEPT AEP, UK, E51, HK)			R352	1-216-841-11	METAL CHIP	47K	5%	1/16W
R234	1-216-833-11	METAL CHIP	10K	5%	1/16W	R353	1-216-841-11	METAL CHIP	47K	5%	1/16W
			(AEP, UK)								
R234	1-218-272-11	RES-CHIP	5.1K	5%	1/16W	R355	1-216-821-11	METAL CHIP	1K	5%	1/16W
			(E51, HK)			R356	1-216-821-11	METAL CHIP	1K	5%	1/16W
R235	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R357	1-216-821-11	METAL CHIP	1K	5%	1/16W
R236	1-216-833-11	METAL CHIP	10K	5%	1/16W	R358	1-216-821-11	METAL CHIP	1K	5%	1/16W
R243	1-216-833-11	METAL CHIP	10K	5%	1/16W	R360	1-216-797-11	METAL CHIP	10	5%	1/16W
R300	1-216-813-11	METAL CHIP	220	5%	1/16W						(EXCEPT AEP, UK, E51, HK)
R301	1-216-809-11	METAL CHIP	100	5%	1/16W	R360	1-216-864-11	METAL CHIP	0	5%	1/16W
R302	1-249-411-11	CARBON	330	5%	1/4W						(AEP, UK, E51, HK)
R303	1-249-413-11	CARBON	470	5%	1/4W F	R361	1-216-833-11	METAL CHIP	10K	5%	1/16W
R304	1-216-864-11	METAL CHIP	0	5%	1/16W	R362	1-216-845-11	METAL CHIP	100K	5%	1/16W
R305	1-216-833-11	METAL CHIP	10K	%	1/16W						(EXCEPT E51, HK)
						R362	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
											(E51, HK)
R307	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	R363	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R313	1-216-823-11	METAL CHIP	1.5K	5%	1/16W						
R314	1-216-815-11	METAL CHIP	330	5%	1/16W	R364	1-249-413-11	CARBON	470	5%	1/4W F
R315	1-216-809-11	METAL CHIP	100	5%	1/16W	R365	1-216-833-11	METAL CHIP	10K	5%	1/16W
			(EXCEPT AEP, UK, E51, HK)			R366	1-216-833-11	METAL CHIP	10K	5%	1/16W
R315	1-216-864-11	METAL CHIP	0	5%	1/16W	R367	1-216-843-11	METAL CHIP	68K	5%	1/16W
			(AEP, UK, E51, HK)			R368	1-216-841-11	METAL CHIP	47K	5%	1/16W
R316	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R370	1-216-841-11	METAL CHIP	47K	5%	1/16W
R317	1-216-849-11	METAL CHIP	220K	5%	1/16W	R371	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R319	1-216-833-11	METAL CHIP	10K	5%	1/16W						(EXCEPT AEP, UK, E51, HK)
R320	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R371	1-216-821-11	METAL CHIP	1K	5%	1/16W
R321	1-216-833-11	METAL CHIP	10K	5%	1/16W						(AEP, UK, E51, HK)
						R372	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R322	1-216-809-11	METAL CHIP	100	5%	1/16W	R373	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
			(EXCEPT AEP, UK, E51, HK)								
R322	1-216-864-11	METAL CHIP	0	5%	1/16W	R374	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
			(AEP, UK, E51, HK)			R389	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R326	1-216-809-11	METAL CHIP	100	5%	1/16W	R401	1-216-841-11	METAL CHIP	47K	5%	1/16W
R327	1-216-833-11	METAL CHIP	10K	5%	1/16W	R402	1-216-821-11	METAL CHIP	1K	5%	1/16W
R328	1-216-833-11	METAL CHIP	10K	5%	1/16W	R403	1-216-821-11	METAL CHIP	1K	5%	1/16W
R329	1-216-841-11	METAL CHIP	47K	5%	1/16W	R404	1-216-821-11	METAL CHIP	1K	5%	1/16W
R330	1-216-841-11	METAL CHIP	47K	5%	1/16W	R405	1-216-821-11	METAL CHIP	1K	5%	1/16W
R331	1-216-837-11	METAL CHIP	22K	5%	1/16W	R406	1-216-821-11	METAL CHIP	1K	5%	1/16W
R333	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R407	1-216-821-11	METAL CHIP	1K	5%	1/16W
R334	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R409	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R336	1-216-809-11	METAL CHIP	100	5%	1/16W	R419	1-216-821-11	METAL CHIP	1K	5%	1/16W
R340	1-216-833-11	METAL CHIP	10K	5%	1/16W	R420	1-216-821-11	METAL CHIP	1K	5%	1/16W
R341	1-216-833-11	METAL CHIP	10K	5%	1/16W	R421	1-216-821-11	METAL CHIP	1K	5%	1/16W
R342	1-216-809-11	METAL CHIP	100	5%	1/16W	R422	1-216-821-11	METAL CHIP	1K	5%	1/16W
			(AEP, UK)			R423	1-216-821-11	METAL CHIP	1K	5%	1/16W
R343	1-216-857-11	METAL CHIP	1M	5%	1/16W						
			(AEP, UK)			R424	1-216-821-11	METAL CHIP	1K	5%	1/16W
						R425	1-216-821-11	METAL CHIP	1K	5%	1/16W
R344	1-216-821-11	METAL CHIP	1K	5%	1/16W	R426	1-216-821-11	METAL CHIP	1K	5%	1/16W
			(AEP, UK)			R427	1-216-821-11	METAL CHIP	1K	5%	1/16W
R345	1-216-809-11	METAL CHIP	100	5%	1/16W	R428	1-216-821-11	METAL CHIP	1K	5%	1/16W
			(AEP, UK)								
R346	1-216-845-11	METAL CHIP	100K	5%	1/16W	R429	1-247-807-31	CARBON	100	5%	1/4W
			(AEP, UK)			R430	1-247-807-31	CARBON	100	5%	1/4W
R347	1-216-821-11	METAL CHIP	1K	5%	1/16W	R432	1-216-821-11	METAL CHIP	1K	5%	1/16W
			(AEP, UK)			R433	1-216-821-11	METAL CHIP	1K	5%	1/16W
R348	1-216-853-11	METAL CHIP	470K	5%	1/16W	R434	1-216-821-11	METAL CHIP	1K	5%	1/16W
			(AEP, UK)								



## HCD-CP500MD

MAIN

POWER

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description		Remarks
R435	1-249-417-11	CARBON	1K	5%	1/4W F	SJ301	1-694-820-11	< TERMINAL BOARD >		
R436	1-249-417-11	CARBON	1K	5%	1/4W F					
R437	1-249-417-11	CARBON	1K	5%	1/4W F					
R438	1-249-417-11	CARBON	1K	5%	1/4W F					
R439	1-216-821-11	METAL CHIP	1K	5%	1/16W					
								< TERMINAL >		
R440	1-216-821-11	METAL CHIP	1K	5%	1/16W	TH1	1-537-770-11	TERMINAL BOARD, GROUND		
R441	1-216-821-11	METAL CHIP	1K	5%	1/16W	TH2	1-537-770-11	TERMINAL BOARD, GROUND		
R442	1-249-417-11	CARBON	1K	5%	1/4W F					
R443	1-216-821-11	METAL CHIP	1K	5%	1/16W			< VIBRATOR >		
R444	1-216-801-11	METAL CHIP	22	5%	1/16W					
R445	1-216-821-11	METAL CHIP	1K	5%	1/16W	X301	1-579-242-41	VIBRATOR, CRYSTAL (4.332Hz)(AEP, UK)		
R446	1-216-845-11	METAL CHIP	100K	5%	1/16W	X801	1-567-098-41	VIBRATOR, CRYSTAL (32.768MHz)		
R448	1-216-821-11	METAL CHIP	1K	5%	1/16W	X802	1-781-107-21	VIBRATOR, SERAMIC (10MHz)		
R449	1-216-821-11	METAL CHIP	1K	5%	1/16W	*****				
R450	1-216-821-11	METAL CHIP	1K	5%	1/16W		A-4725-836-A	POWER BOARD, COMPLETE (AEP, UK, AUS, CH)		
							A-4725-850-A	POWER BOARD, COMPLETE (E51, HK)		
R452	1-216-821-11	METAL CHIP	1K	5%	1/16W			*****		
R453	1-216-821-11	METAL CHIP	1K	5%	1/16W					
R454	1-216-833-11	METAL CHIP	10K	5%	1/16W		1-533-233-11	HOLDER, FUSE		
R455	1-216-821-11	METAL CHIP	1K	5%	1/16W					
R456	1-216-821-11	METAL CHIP	1K	5%	1/16W			< CAPACITOR >		
R457	1-216-821-11	METAL CHIP	1K	5%	1/16W	C902	1-101-005-00	CERAMIC	22000PF	50V
R458	1-216-821-11	METAL CHIP	1K	5%	1/16W	C903	1-101-005-00	CERAMIC	22000PF	50V
R466	1-216-821-11	METAL CHIP	1K	5%	1/16W	C904	1-101-005-00	CERAMIC	22000PF	50V
R467	1-216-821-11	METAL CHIP	1K	5%	1/16W	C905	1-101-005-00	CERAMIC	22000PF	50V
R468	1-216-821-11	METAL CHIP	1K	5%	1/16W	C906	1-161-494-00	CERAMIC	0.022uF	25V
R474	1-216-821-11	METAL CHIP	1K	5%	1/16W	C907	1-161-494-00	CERAMIC	0.022uF	25V
R475	1-249-417-11	CARBON	1K	5%	1/4W F	C908	1-161-494-00	CERAMIC	0.022uF	25V
R476	1-216-821-11	METAL CHIP	1K	5%	1/16W	C909	1-161-494-00	CERAMIC	0.022uF	25V
R477	1-216-821-11	METAL CHIP	1K	5%	1/16W	C910	1-161-494-00	CERAMIC	0.022uF	25V
R478	1-216-821-11	METAL CHIP	1K	5%	1/16W	C911	1-104-664-11	ELECT	47uF	20.00% 25V (EXCEPT E51, HK)
R479	1-216-821-11	METAL CHIP	1K	5%	1/16W					
R480	1-216-821-11	METAL CHIP	1K	5%	1/16W	C911	1-104-666-11	ELECT	220uF	20.00% 16V (E51, HK)
R481	1-216-821-11	METAL CHIP	1K	5%	1/16W					
R482	1-216-821-11	METAL CHIP	1K	5%	1/16W	C912	1-126-767-11	ELECT	100uF	20.00% 16V (EXCEPT E51, HK)
R483	1-216-821-11	METAL CHIP	1K	5%	1/16W	C912	1-126-941-11	ELECT	470uF	20.00% 16V (E51, HK)
R484	1-216-821-11	METAL CHIP	1K	5%	1/16W					
R485	1-216-821-11	METAL CHIP	1K	5%	1/16W	C913	1-161-494-00	CERAMIC	0.022uF	25V (E51, HK)
R486	1-216-821-11	METAL CHIP	1K	5%	1/16W					
R487	1-216-821-11	METAL CHIP	1K	5%	1/16W	C914	1-161-494-00	CERAMIC	0.022uF	25V (E51, HK)
R488	1-216-821-11	METAL CHIP	1K	5%	1/16W					
R489	1-216-821-11	METAL CHIP	1K	5%	1/16W	C915	1-161-494-00	CERAMIC	0.022uF	25V (E51, HK)
R490	1-216-821-11	METAL CHIP	1K	5%	1/16W					
R491	1-216-821-11	METAL CHIP	1K	5%	1/16W	C916	1-161-494-00	CERAMIC	0.022uF	25V (E51, HK)
R492	1-216-821-11	METAL CHIP	1K	5%	1/16W					
R493	1-216-821-11	METAL CHIP	1K	5%	1/16W	C917	1-104-665-11	ELECT	100uF	20.00% 16V (E51, HK)
R494	1-216-821-11	METAL CHIP	1K	5%	1/16W	C918	1-126-964-11	ELECT	10uF	20.00% 50V
R495	1-216-864-11	METAL CHIP	0	5%	1/16W (EXCEPT E51, HK)			< CONNECTOR >		
R495	1-216-811-11	METAL CHIP	150	5%	1/16W (E51, HK)	CN901	1-564-321-00	PIN, CONNECTOR 2P		
R497	1-216-864-11	METAL CHIP	0	5%	1/16W (EXCEPT AEP, UK)	* CN902	1-764-333-11	PLUG, CONNECTOR 10P (EXCEPT E51, HK)		
R497	1-216-829-11	METAL CHIP	4.7K	5%	1/16W (AEP, UK)	CN902	1-766-283-11	PIN, CONNECTOR (PC BOARD) 10P (E51, HK)		
								< DIODE >		
R509	1-216-821-11	METAL CHIP	1K	5%	1/16W	D902	8-719-902-17	DIODE 1N5401		
R513	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	D903	8-719-902-17	DIODE 1N5401		
						D904	8-719-902-17	DIODE 1N5401		
						D905	8-719-902-17	DIODE 1N5401		
						D906	8-719-046-07	DIODE 2A02M		

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
D907	8-719-046-07	DIODE 2A02M		A-4725-838-A	TC BOARD, COMPLETE		
D908	8-719-046-07	DIODE 2A02M			*****		
D909	8-719-046-07	DIODE 2A02M			< CAPACITOR >		
D910	8-719-991-33	DIODE 1SS133T-77					
D911	8-719-991-33	DIODE 1SS133T-77		C402	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
D912	8-719-991-33	DIODE 1SS133T-77		C403	1-104-509-11	CERAMIC CHIP 0.018uF 10.00% 16V	
D913	8-719-991-33	DIODE 1SS133T-77		C404	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
D915	8-719-109-97	DIODE MTZJ-T-77-6.8B		C405	1-126-934-11	ELECT 220uF 20.00% 10V	
D917	8-719-991-33	DIODE 1SS133T-77		C408	1-104-664-11	ELECT 47uF 20.00% 10V	
D918	8-719-109-93	DIODE MTZJ-T-77-6.2B					
D919	8-719-991-33	DIODE 1SS133T-77		C409	1-126-963-11	ELECT 4.7uF 20.00% 50V	
D920	8-719-991-33	DIODE 1SS133T-77		C410	1-126-963-11	ELECT 4.7uF 20.00% 50V	
		< FUSE >		C412	1-126-961-11	ELECT 2.2uF 20.00% 50V	
△F901	1-533-466-11	FUSE, GLASS TUBE (DIA. 5)(T1.25AL/250V)		C414	1-104-664-11	ELECT 47uF 20.00% 10V	
		(E51, HK)		C415	1-104-664-11	ELECT 47uF 20.00% 10V	
△F902	1-533-468-11	FUSE, GLASS TUBE (DIA. 5)(T2AL/250V)		C416	1-126-963-11	ELECT 4.7uF 20.00% 50V	
		(E51, HK)		C417	1-126-963-11	ELECT 4.7uF 20.00% 50V	
△F903	1-533-468-11	FUSE, GLASS TUBE (DIA. 5)(T2AL/250V)		C420	1-126-965-11	ELECT 22uF 20.00% 50V	
△F904	1-533-468-11	FUSE, GLASS TUBE (DIA. 5)(T2AL/250V)		C422	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
△F905	1-533-464-11	FUSE, GLASS TUBE (DIA. 5)(T0.8AL/250V)		C423	1-126-960-11	ELECT 1uF 20.00% 50V	
		(AEP, UK, AUS, CH)					
		< LINE FILTER >		C424	1-126-960-11	ELECT 1uF 20.00% 50V	
△LF901	1-424-150-11	TRANSFORMER, LINE FILTER		C425	1-126-934-11	ELECT 220uF 20.00% 16V	
		< TRANSISTOR >		C428	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
Q901	8-729-056-23	TRANSISTOR STC352-OY (EXCEPT E51, HK)		C429	1-164-730-11	CERAMIC CHIP 0.0012uF 10.00% 50V	
Q901	8-729-028-54	TRANSISTOR KTC3205-Y-AT(E51, HK)		C430	1-164-730-11	CERAMIC CHIP 0.0012uF 10.00% 50V	
Q902	8-729-119-79	TRANSISTOR 2SC2785TP-FEK					
Q903	8-729-056-23	TRANSISTOR STC352-OY (EXCEPT E51, HK)		C431	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
Q903	8-729-028-54	TRANSISTOR KTC3205-Y-AT (E51, HK)		C432	1-136-967-11	MYLAR 0.012uF 5.00% 50V	
		< RESISTOR >		C433	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
R902	1-249-417-11	CARBON 1K 5% 1/4W F		C434	1-104-664-11	ELECT 47uF 20.00% 10V	
		(EXCEPT E51, HK)		C435	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
R902	1-249-413-11	CARBON 470 5% 1/4W F					
		(E51, HK)		C436	1-104-509-11	CERAMIC CHIP 0.018uF 10.00% 16V	
R903	1-249-425-11	CARBON 4.7K 5% 1/4W F		C437	1-126-934-11	ELECT 220uF 20.00% 10V	
R904	1-249-437-11	CARBON 47K 5% 1/4W		C438	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
R905	1-247-807-31	CARBON 100 5% 1/4W		C439	1-126-935-11	ELECT 470uF 20.00% 16V	
R906	1-247-807-31	CARBON 100 5% 1/4W		C440	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
		< RELAY >					
△RY901	1-755-332-11	RELAY		C450	1-126-965-11	ELECT 22uF 20.00% 50V	
		< SWITCH >					
△S901	1-786-152-11	SWITCH, SLIDE (VOLTAGE SELECTOR)(E51, HK)			< CONNECTOR >		
		< TRANSFORMER >		* CN301	1-569-366-11	SOCKET, CONNECTOR 18P	
△T901	1-437-251-11	TRANSFORMER, POWER (AEP, UK, AUS, CH)		CN302	1-569-927-11	SOCKET, CONNECTOR 9P	
△T901	1-437-253-11	TRANSFORMER, POWER (E51, HK)			< DIODE >		
△T902	1-437-248-21	TRANSFORMER, POWER		D401	8-719-975-40	DIODE RB411D-T146	
		*****			< IC >		
				IC401	8-759-242-58	IC TA8189N	
				IC402	8-759-508-69	IC BA3126N	
					< TRANSISTOR >		
				Q401	8-729-212-02	TRANSISTOR KTC3203Y-AT	
				Q402	8-729-037-02	TRANSISTOR KTA1266Y-AT	
				Q403	8-729-038-67	TRANSISTOR KRC102S	
				Q406	8-729-920-31	TRANSISTOR DTC343TK-T-146	
				Q407	8-729-920-31	TRANSISTOR DTC343TK-T-146	
				Q413	8-729-920-31	TRANSISTOR DTC343TK-T-146	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

以阴影和 △ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。

HCD-CP500MD
Ver. 1.1

TC

Table with 4 columns: Ref. No., Part No., Description, Remarks. Rows include components like TRANSISTOR, RESISTOR, METAL CHIP, TRANSFORMER, and MISCELLANEOUS parts.

Table with 4 columns: Ref. No., Part No., Description, Remarks. Rows include components like WIRE, CORD, FLEXIBLE BOARD, MOTOR ASSY, DISPLAY PANEL, SWITCH, TRANSFORMER, and SCREW.

The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

以阴影和 ▲ 标志来识别的零部件，在安全方面具有关键性。因此只能以规定号码的零部件来更换。



MEMO